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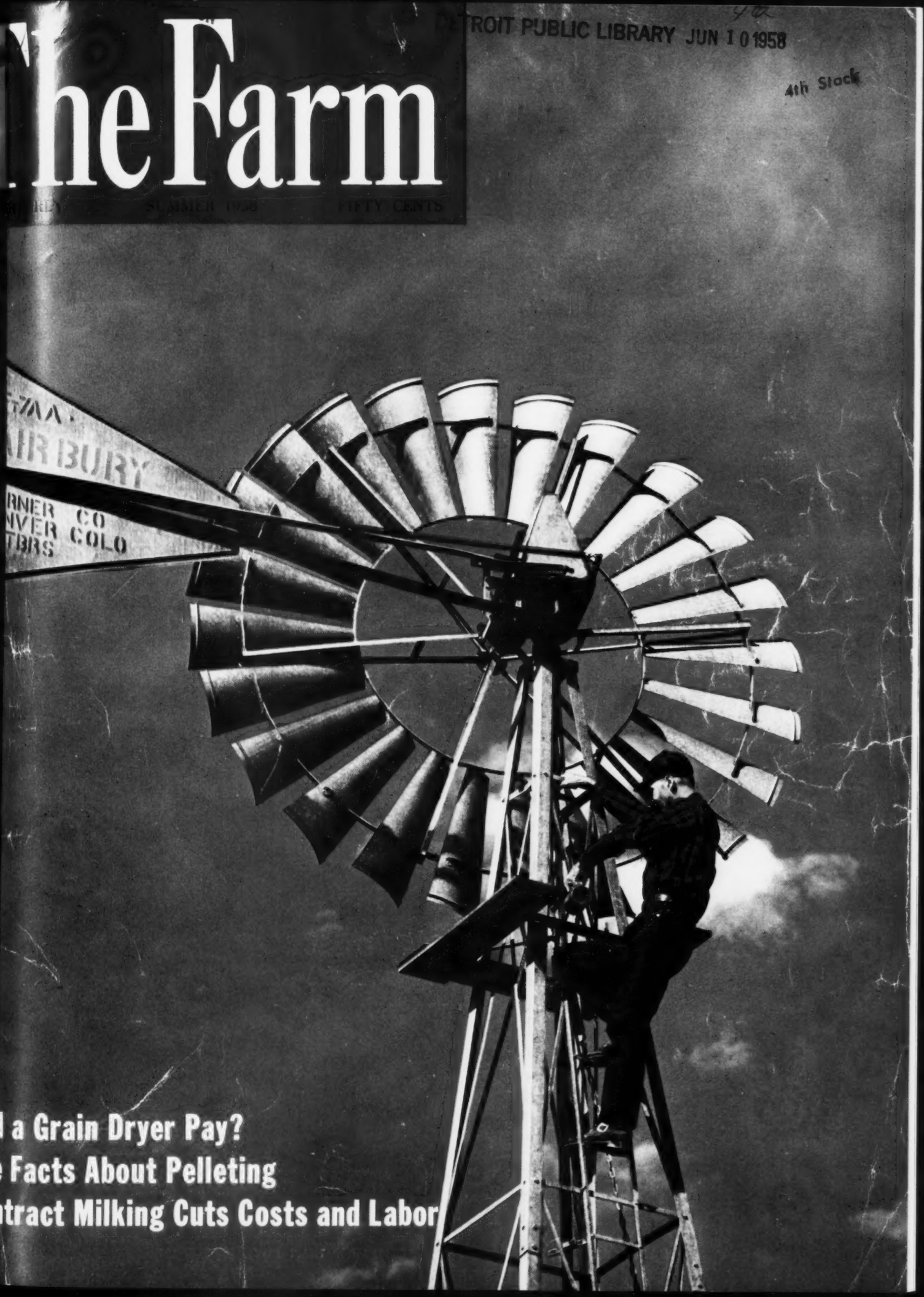
The Farm

SUMMER 1958 FIFTY CENTS



l a Grain Dryer Pay?

e Facts About Pelleting

ntract Milking Cuts Costs and Labor

This nearby Goodyear dealer sign means better tire values—better tire care—convenient credit terms.

New Super-Rib is here!

The better-better-better* front tractor tire

Today's bigger, higher-powered tractors demand tougher, more strongly built front tires.

So Goodyear designed the new SUPER-RIB—and field experience proves that *any* tractor, new or old, does better work with it.

Its wider, huskier center rib adds amazing new straight-line steering control and turning life—and avoids soil pack-in problems—increases resistance to bruising and cutting in the vital center tread area.

Tough flanking ribs give more flotation, better load distribution—and cut rolling resistance.

Smooth shoulders and sidewalls cut stubble wear—and the new SUPER-RIB *Rim-Shield* keeps out trash and protects rims.

The SUPER-RIB is built with Goodyear's exclusive Triple-Tough 3-T Cord—greatest tire *saver* in over 20 years!

Only Goodyear dealers have the new 3-T Cord SUPER-RIB. Stop by and see the features that count most in front tractor tires! Goodyear, Farm Tire Dept., Akron 16, Ohio.

*3 ribs for **better** steering **better** flotation **better** wear

Watch "Goodyear Theater" on TV—every other Monday, 9:30 P.M., E.S.T.

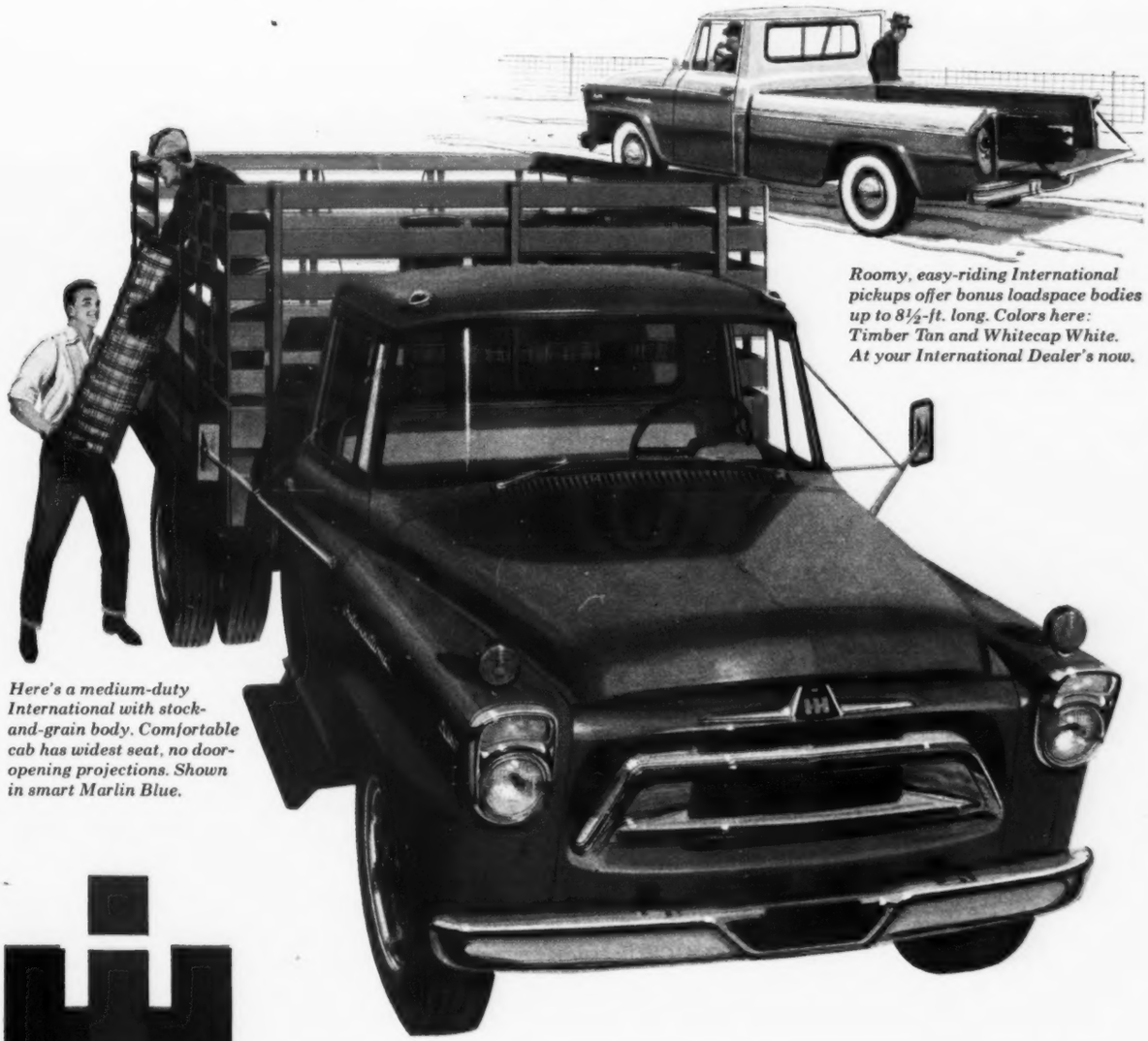
60th GOODYEAR ANNIVERSARY

GOODYEAR

MORE FARMERS PREFER GOODYEAR TRACTOR TIRES THAN ANY OTHER KIND!

JUN 10 1958

These are rugged trucks picked at random
from the world's most complete truck line.
Sensibly powered Internationals, of course.
Now showing more *style*, *color*, *comfort*,
and *modern spirit* than you can really imagine.
So see them. Drive them.



Roomy, easy-riding International pickups offer bonus loadspace bodies up to 8½-ft. long. Colors here: Timber Tan and Whitecap White. At your International Dealer's now.

Here's a medium-duty International with stock-and-grain body. Comfortable cab has widest seat, no door-opening projections. Shown in smart Marlin Blue.

NO OTHER TRUCKS LINE UP . . . MEASURE UP . . . STAND UP LIKE INTERNATIONALS

* More models, power choices and "tailored-for-you" features than any other make.
* First choice of heavy-duty truck operators, who must have superb quality and who measure costs to the penny.
* Every part truck-designed, Truck quality, pure and simple, keeps an International going — longer — at least cost to you.

INTERNATIONAL TRUCKS cost least to own!

INTERNATIONAL HARVESTER COMPANY, CHICAGO • Motor Trucks • Crawler Tractors • Construction Equipment • McCormick® Farm Equipment and Farmall® Tractors

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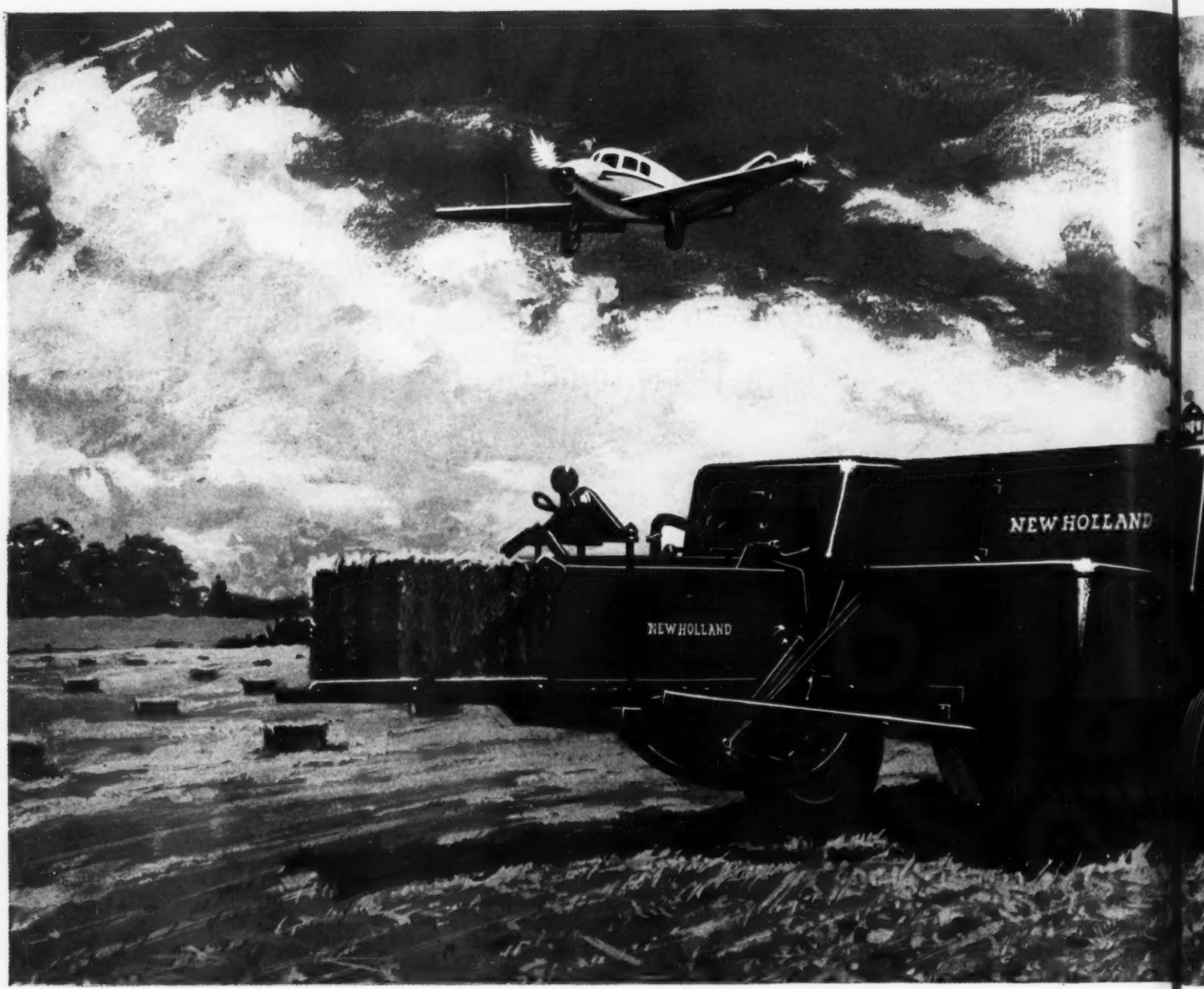


Now—EXTRA BALE-POWER with the

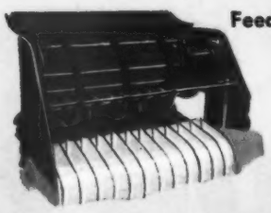
New Super

PLUS

***FLOW-ACTION** with Feeder-Assist!*

*Rugged **WEIGHT-SAVING** construction!*

*Choice of **TWINE** or **WIRE-TIE** models!*



Feeder-assist speeds flow of hay

Special finger mechanism rotates above pick-up . . . feeds hay faster into path of Flow-Action tines . . . helps prevent clogging or jamming in even the heaviest windrows.

Here's capacity that makes light work of your heaviest windrows . . . rugged quality that stands up to day-in, day-out baling . . . gentle handling that saves protein-rich leaves!

It's all made possible because New Holland has adapted the smooth ease and speed of Flow-Action to a heavy-duty 16″ x 18″ baler. Spring-loaded telescoping tine-bar moves hay gently. No sharp corners. No auger. No wad-board. Just a smooth, easy flowing action from pick-up to chamber!

What's more, Flow-Action has fewer working parts. Extensive use of strong, light metals results in a baler that is easier to handle and

Typical field trial for the great new Super Hayliner 78: Extensive tests under varying conditions of crop and terrain have proved Super Hayliner's stamina and efficiency. For example, in the hayfield above, near an airport, this new Super Hayliner 78 was put through unusually heavy, bunchy windrows. It *never* clogged or jammed . . . kept putting out green, leafy bales hour after hour—a clear-cut demonstration of extra bale power!

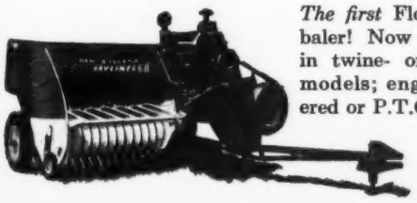
Hayliner 78!

lasts longer. Because the Super Hayliner 78 is easier to pull, more tractor power is available for operating the baler.

See the great new Super Hayliner at your New Holland dealer's *today!* New Holland Machine Company Division of Sperry Rand Corporation, New Holland, Pennsylvania.

* * *

For family-size farms . . . Hayliner 68



The first Flow-Action baler! Now available in twine- or wire-tie models; engine-powered or P.T.O.

Tear out coupon now—get the complete story!

New Holland Machine Company
906 Oak Street, New Holland, Pennsylvania
Please rush me free catalog on the new Super Hayliner 78.

Name:_____

Address:_____

Town:_____ State:_____

NEW HOLLAND

"First in Grassland Farming"

"WE FARM WITH 7 TRACTORS, 2 COMBINES AND 142 FIRESTONE TIRES!"

says Claude Hughes, 1,800-acre corn and wheat farmer of Scott City, Kansas.

Claude Hughes (right) and son Harold represent two generations of Firestone users.

Copyright 1958, The Firestone Tire & Rubber Company

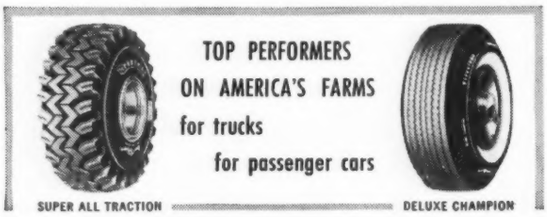
The year-in, year-out daily grind of Kansas grain farming is hard on any tire. And during harvest seasons at Claude Hughes' Scott County layout, that daily grind lasts around the clock. That's when downtime can mean heavy loss. And that's why Claude counts on Firestones for extra performance and durability.

"A modern farm depends on tires," Claude says. "I never realized just *how* important tires are until I added up the number we use here. We have 142 Firestone tires of various types on the job right now.

"Why Firestones? I use them and like them because I can mount Firestones and forget about downtime. That's why they're on all my equipment—the tractors and combines, my 5 pickups, 4 trucks, and 4 cars."

Claude likes the service his Firestone Dealer, C. E. Claycomb, gives him, too—and that means day or night service at harvest time. Like the majority of Scott County farmers, Claude Hughes has found that the Firestone combination of service and performance eliminates tire problems on tough farm jobs.

There's a tire expert at your Firestone Dealer or Store. See him about farm and truck tire needs. If you have tire trouble, he will lend you Firestone tires to use while your old ones are repaired or retreaded.



ALWAYS A YEAR TO PAY

Firestone

BETTER RUBBER FROM START TO FINISH

Two "Heads" are Better Than One

1 GRAIN HEAD. This is the new 16- or 18-foot 95 Self Propelled in wheat. The 95 is today's biggest-capacity combine. It has a 40-inch cylinder and separator.

...That's Why You Get More for Your Money in a JOHN DEERE Self-Propelled

JUST as the old saying, "Two heads are better than one," implies versatility of thought, two combine "heads" assure versatility in the harvest field. Two "heads"—the regular grain platform and the two-row corn attachment—mean you can combine all crops, from the first small grain or seed right on through corn, with any of the three great John Deere Self-Propelleds—the 8- or 10-foot 45, the 12- or 14-foot 55, or the new 16- or 18-foot 95.

Combining all combineable crops with one machine makes good, sound business sense. It spreads your investment over more acres . . . it reduces upkeep costs . . . the original cost is lower. And, you reduce field shelling losses of corn by 75 per cent—cut ear losses 50 per cent. These tremendous savings of corn are made possible because you can combine corn earlier, when it has as much as 30 per cent moisture.

You'll be money ahead in every way with a John Deere Self-Propelled. Get full details on owning the one that best fits your needs from your John Deere dealer.

ask about the JOHN DEERE CREDIT PLAN

2 CORN HEAD. This is the 12- or 14-foot-size 55 Combine with Two-Row Corn Attachment. All John Deere Self-Propelleds handle corn as well as all grain and seed crops. And, because of their outstanding capacity, they do good work in every crop.

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Please send me your free illustrated folder on the 8- or 10-foot 45 ☐ the 12- or 14-foot 55 ☐ on the new 16- or 18-foot 95 ☐.

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JOHN DEERE

"WHEREVER CROPS GROW, THERE'S A GROWING DEMAND FOR JOHN DEERE FARM EQUIPMENT"

HIGH NOON AND ACRES AHEAD

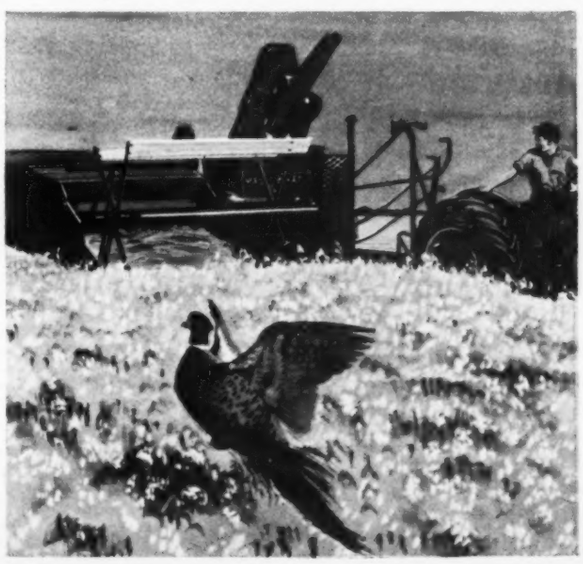
Come the noontime break, one of these big beauties will have done the full day's work of a smaller, less efficient make!

These are the magnificent Massey-Harris 92 Harvest Streamliners. And no other combines in the whole wide world can match them... in big, big capacity; in low, low body design for easier transport and storage; in superlative high-profit performance.

For large acreages, the Massey-Harris 92 is *it*. With its balanced separation . . . its 37-in. full-width, straight-through threshing body . . . its 12, 14 or 16 ft. tables and 60-bushel grain tank . . . the 92 gets in the harvest faster than anything else in the field, and with unequalled grain-saving efficiency. And its companion . . . the Massey-Harris 82 with 32-in. body and cylinder and 10, 12 and 14 ft. tables . . . also provides big-acreage operators with big capacity to speed up the harvest.

Great Massey-Harris combines like the 82 and 92 are an important part of the complete new *full line* of power-farming equipment now carried by Massey-Ferguson dealers.

PROUD? YOU BET!



Now he can harvest his family-size farm just like the "big fellows" do

Up there, he's sitting pretty. He's going to harvest his crops faster than he ever did, at their peak maturity . . . and save more of them!

He's up on his brand new Massey-Harris 35 . . . the first moderately priced self-propelled 7 ft. combine with the same profit-making advantages that make the *big* Massey-Harris combines world-famous. He gets the same kind of *balanced separation* with straight-through body design. He gets finger-tip control of power, cutting table, operating speed. He gets easy, one-handed steering. He gets them all, in the streamlined family-farm sized 35!

Top profit-maker for average farms. Massey-Harris 60 (middle left). If you want peak performance in a 10 or 12 ft. cut combine, at low operating and investment cost . . . this is the self-propelled for you. The Massey-Harris 60 is patterned after the world-famous Massey-Harris *big* combines in all of its high-performance features . . . brings the same grain-saving, profit-making efficiency to smaller farms . . . the same full cylinder width, straight-through design that has never been equalled!

Pull-type clipper 50 (lower left) has 27% more grain separation area than the average of all other 6-ft. combines! It gets more grain, cleaner grain, and gets it faster. Full 5-ft. cylinder, easily adjusted concave, 4-step swinging straw rack, sealed bearings. In PTO or engine-driven, hydraulic or hand table lift, 6 or 7 ft. table models.

MASSEY FERGUSON

Massey-Ferguson Inc., Racine, Wisconsin

World's most famous combines and the only tractors with the Ferguson System

Sign of better health for your livestock

Hundreds of new signs like this are going up across the country

Have you ever thought of your Veterinarian as a Health Engineer? More and more farmers are proving that Health Engineering is their most economical way to keep livestock healthy and producing at a profit.

A new sign... a new graduate veterinarian begins his professional practice.

It's a great day for him... and for you, too, because he's a specialist you can rely on to help protect the health of your livestock—and your investment.

If there is a new veterinarian in your community—bid him welcome. He's one of hundreds* of new graduates who are joining 19,347 older veterinarians in playing a vital role in America's livestock industry.

Young or old—your veterinarian is a man of high professional standards... a man who subscribes to this creed...

"To regard my profession as something more than a means of livelihood... To guide my conduct by sober judgment... To be modest, and open-minded and thankful for every opportunity to increase my knowledge and my usefulness..."

Backed by vast veterinary research... by years of intensive scientific study... your veterinarian brings to your farm high professional skill for diagnosis, specialized treatment, surgery, and counsel on preventive practices including nutrition.

Vital allies of your veterinarian in conquering disease are effective, reliable drugs. Squibb serves the veterinary profession and you by providing drugs of highest efficacy... veterinary products based on sound, authoritative research.

Your veterinarian, plus dependable drugs, and good management practices—*all working together*—help keep your herds healthy, productive, and more profitable.

SQUIBB
Veterinary Department
745 Fifth Avenue, New York 22, N. Y.

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For prompt, accurate diagnosis, always consult your veterinarian.

*More than half of the estimated 851 new graduates will enter general practice. Others will begin important work in specialized practice, armed forces, teaching, research, regulatory or commercial services.

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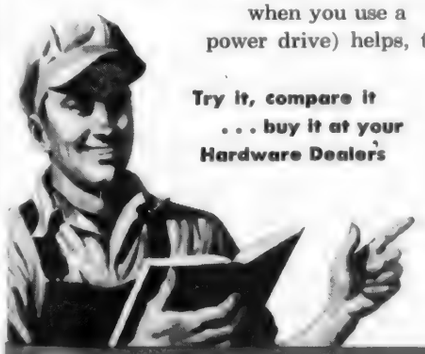
So you get easier quicker action with

New

RIDGID

Heavy-Duty Pipe Cutters

The instant you start feeding in this new cutter on a pipe you feel the remarkable difference, the new cushioning effect that makes cutting much easier and faster. And the bigger handle and extra long shank (protecting threads on screw handle when you use a power drive) helps, too.



Try it, compare it . . . buy it at your Hardware Dealers

The Ridge Tool Company, Elyria, Ohio, U.S.A.

The Farm QUARTERLY

Summer, 1958, Volume 13, No. 2

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THE FARM QUARTERLY

22 East Twelfth Street, Cincinnati 10, Ohio

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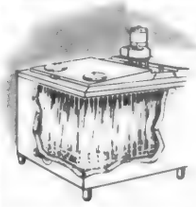
"We Bought A DARI-KOOL And We Sure Are Satisfied!"

Writes MR. HERMAN VOSTERS
Seymour, Wisconsin

"We had a direct expansion milk cooler. We got rid of it and bought a DARI-KOOL. Now we've got what we want and we sure are satisfied!"

(signed) Herman Vosters



DARI-KOOL'S ICE-BANK AND GLACIAL WATERFALL COOLS FASTER, WITH NO FREEZING

DARI-KOOL'S ICE-BANK PROTECTS YOUR MILK DURING ELECTRIC POWER FAILURES

DARI-KOOL TANKS ARE MUCH EASIER TO CLEAN

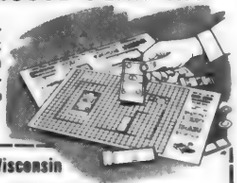
DARI-KOOL MEETS ALL 3A STANDARDS

DARI-KOOL
BULK MILK COOLERS

Available in 100 to 1000 gallon capacities.

Send for your **FREE MILKHOUSE PLAN KIT**

Plan your milkhouse with this easy-to-use kit. Sketch outline of your present or proposed milkhouse on the graph sheet. Then arrange scale model coolers, wash tanks, water heaters, etc., to fit your plans.



Dairy Equipment Co., Dept. 87, Madison, Wisconsin
Please send, without obligation, your new Milkhouse Plan Kit.

NAME.....

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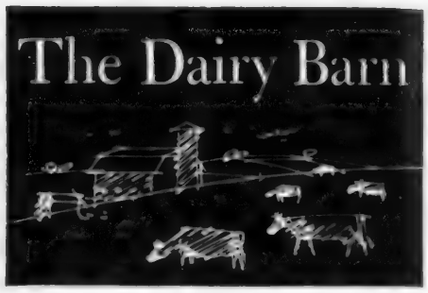
COUNTY.....STATE.....

☐ I am a Dairy Farmer ☐ I am a Student



A Stitch in Time Notice just a couple of flies in the barn? Save the nine stitches by fly fighting now and forestalling the arrival of the umpteen billion offspring of the first adults. Experiment station tests have shown good results from spraying with a long-lasting residual fly spray. The residual phosphate sprays are applied to barn walls and ceilings—and house, stable and horn flies are killed as they rest on the treated surface.

Spraying outside—on gates, gate posts and outside walls at barn entrances—kills the biting flies which rest there when digesting a blood meal. Residual sprays should not be applied to the animals. Two sprayings a year with sprays such as Diazinon will usually control flies all season.

Be sure all feed, and feed and drinking spaces, are covered before spraying inside. The animals should then be kept out of the building for four hours.

Knock the Rock Cows, conservative at heart, apparently prefer Strauss to Rock 'n' Roll. Or so the experiment of a couple of dairymen would seem to indicate. Walter Faeth, St. Charles, Illinois, drew 227 pounds more milk out of his cows when he played them waltzes.

Milton Hitz, Highland, Illinois, with a herd of equal size, played Jazz and the Rock. No appreciable effect on milk production. But his cows were jittery.

When both stopped the music for eight milkings, Hitz reported no change. But the Straussless cows in Faeth's herd gave 40 pounds less.

Disc jockeys please note.

Tailor-Made Milk The big problem in instant whole milk seems to be the butterfat. The perfection of a product that mixes readily in cold water and doesn't go stale in storage is beaten by "meandering" fat. On storage, the fat leaves its native globule and migrates to the outside of the particle. This waterproofs the particle so it won't dissolve properly when water is added.

Scientists are working on the problem. A dry whole milk would have many advantages. It could be stored at room temperature and mixed at convenience to any thickness—whipping "cream," coffee milk, and many recipe uses.

"Since 1868," Mr. James M. Shriver points out, "B. F. Shriver Company has been operating in Carroll County, Md. We now farm 4500 acres of corn, peas, beans and tomatoes. Roughly half of our crops is canned under our own label and the other half is packed for independent wholesalers. In addition, we raise about 1400 head of cattle. For low-cost, dependable hauling of cattle, crops, or canned goods, we know we can count on Eaton 2-Speed Axles."

"10 STRAIGHT YEARS OF SAVINGS with our Eaton 2-Speed Axles"

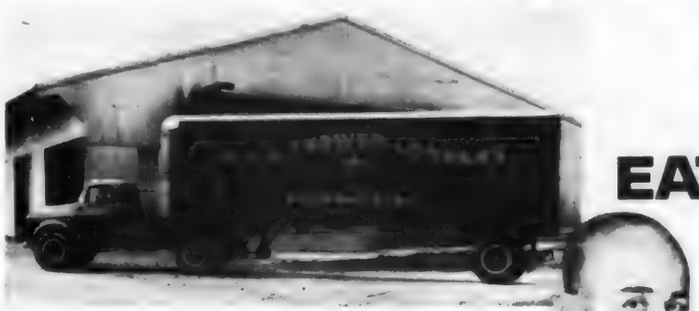
—REPORTS JAMES M. SHRIVER, PRESIDENT, B. F. SHRIVER CO., WESTMINSTER, MD.

"During the ten years that we've been using Dodge trucks equipped with Eaton 2-Speed Axles, our hauling costs have been consistently low," says Mr. Shriver. "But saving gasoline and maintenance expense is only part of the story. Eaton 2-Speeds step up delivery time, make all our hauling jobs easier.

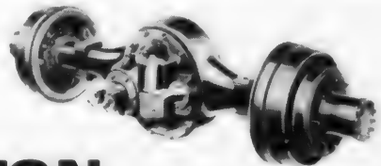
"Hauling feed and fertilizer to our 24 separate farms, Eaton-equipped trucks do a fine, fast job. Moving through muddy soil on the farms, Eaton's low-gear range prevents a fully loaded truck from bogging down and wasting time.

"And when our Eaton-equipped tractors pull payloads of cattle 30 miles away to Baltimore . . . or transport loads to various cities along the Eastern coast, we save money. On the highway, Eaton's high-gear range assures fast, time-saving speeds. After a delivery is made, the empty truck can roll back in record time, enabling us to make more trips per day. For real hauling versatility, Eaton 2-Speed Axles simply can't be matched."

An Eaton 2-Speed can help you farm faster, more efficiently. Ask your truck dealer for a demonstration.



"OVER THE ROAD, our Eaton-equipped trucks speed deliveries, without harmful strain on any of the power-transmitting components," adds Mr. Shriver. "Because the Eaton 2-Speed keeps engine RPM low, engine wear and maintenance are also low. Our cost records prove the Eaton Axle has been a most important economy factor."



EATON 2-Speed Truck Axles

EATON MANUFACTURING COMPANY, CLEVELAND, OHIO

MORE THAN 2 MILLION EATON AXLES IN TRUCKS TODAY

DODGE DEALER J. Cullum Barnsley, owner of Jameson-Barnsley Co., Westminster, recommends Eaton-equipped trucks to all his farm and fleet customers. "I've never heard a complaint from a man who uses an Eaton-equipped truck," says Mr. Barnsley. "Eaton 2-Speeds help prevent maintenance problems and assure longer truck life."

B.F.Goodrich

9 OUT OF 10

users say... "B.F.Goodrich farm tires are the best I've ever used!"

(Based on an actual survey of farmers all over the country)

Don't take our word for it—take the words of farmers just like yourself who have used B.F.Goodrich farm tires. 9 out of 10 of them say B.F.Goodrich farm tires are the best they've ever used!

They're talking about the bigger Power-Grip—the tire that gives so much traction that oversizing may be a thing of the past. Or they're talking about the low-priced Super Hi-Cleat, the Special Service tractor tire, and the complete line of front wheel and implement tires. No matter what your farm tire needs, it will pay you to see your nearby B.F.Goodrich dealer.

B.F.Goodrich Tire Co., A Division of The B.F.Goodrich Co., Akron 18, Ohio.

Your B.F.Goodrich dealer is listed under Tires in the Yellow Pages of your phone book

Cotton farmer Garland Long of Plainview, Tex., is typical of farmers surveyed. "This is tight soil," he says, "and B.F.Goodrich Power-Grip tires give much better traction." Long likes B.F.Goodrich tires so much he uses them on 3 tractors, 3 trucks, a cotton cultivator and trailers.

B.F.Goodrich farm tires

Conservation Contractors

an essential part of your farming program!

There's a man in your community whose specialty is earthmoving and land clearing. He's a conservation contractor! His services can help you become a more successful farmer—make more money . . . have more leisure time . . streamline your farming program . . . get more enjoyment from your farming operation.

For example, with his Cat Diesel Tractor, he can often clear more land, build more miles of terraces, dams, ditches, roads, levees in a *week* than limited-duty farm tractors can do in a year—or not at all! He also has the experience to do work that meets U.S.D.A. specifications.

Should you elect to do the work yourself, take a tip from your conservation contractor: own a Cat Diesel Tractor and you'll do it better—for less!

Range land from waste land—Cat Diesel Tractor and Fleco Root Plow destroy brush without turning over soil Blade cuts trees and brush off below surface; seeder attachment re-seeds grass.

Conservation contractor, Kay Statler of Keota, Ia., is also a farmer. His D8 is shown clearing bottom land for farming. Job involved removing 200 trees and stumps from 10-acre field. He says, "I've watched others perform—I know Cat Diesel Tractors are superior."

Some of the best land on this farm was covered with trees here at Silver Springs Gardens, Inc., Eau Claire, Wis. A D6 is shown here pushing out stumps and clearing. It has also built 8 miles of dikes to protect this new 1,000 acres of peat land which is being cleared and drained for growing horse-radish.

FREE LITERATURE

New Booklets: "LAND CLEARING" —describes efficient land clearing methods; "THE ROAD AHEAD"—explains the Interstate-Defense Highway Program. Write Dept. FQ68, Caterpillar Tractor Co., Peoria, Ill., U.S.A.

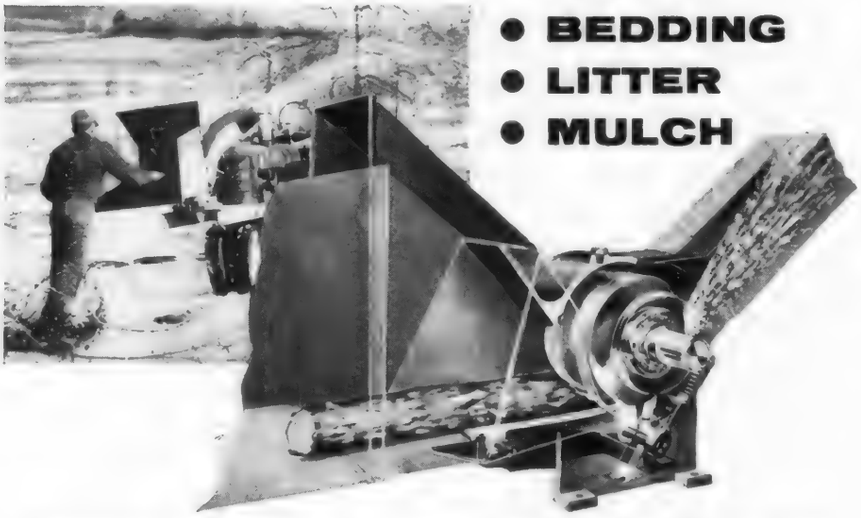
CATERPILLAR TRACTOR CO., Peoria, Illinois, U.S.A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

TELL YOUR DEALER
YOU ARE READY FOR
A DEMONSTRATION

USE A FITCHBURG *Farm* CHIPPER TO MAKE LOW-COST



- BEDDING
- LITTER
- MULCH

Brush removal is always a tough farm chore . . . hard to load . . . difficult to handle. But you take the hard work out of hauling brush with a Fitchburg Farm Chipper. Brush can be quickly reduced to easy-to-haul wood chips. Chips used to make manure, or as mulch can make brush removal profitable on your farm, too. A FITCHBURG FARM CHIPPER WILL WORK FOR YOUR FARM . . .

. . . IN POUND YARDS:

Wood chip bedding stands up better in wet spots. Pound yards bedded with wood chips cake less for faster loading, easier spreading, yet the chips hold up longer near gates and water troughs. Absorbent wood chips will carry plant nutrients to crop land . . . supply crops with a humus that lasts. Seed beds crust less for better germination . . . tight ground holds moisture better . . . stays open longer.

. . . IN ORCHARDS:

Pruning disposal in orchards combines into one simple, soil building operation when a Fitchburg Farm Chipper is used. Tree trimmings need no longer be hauled. Brush can be fed into the chipper and the chips blown around the trees for mulch. This moisture-holding mulch can be worked into the ground with cover crops or left for weed control.

. . . DAIRY BARNS AND POULTRY HOUSES:

Tough absorbent wood chips really stand up in dairy barns and poultry houses. Your Fitchburg Farm Chipper will cut poultry production costs, reduce dairy barn straw requirements by producing litter and bedding from your wood lot. At clean-up time, or whenever clean bedding is needed, your Fitchburg Farm Chipper will chip bedding or litter quickly at low labor cost. Wood chips can be the answer to your difficult bedding and litter problems—A Fitchburg Wood Chipper will supply wood chips quickly and easily.

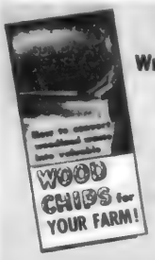
YOUR BEST FARM BUY IS

A FITCHBURG FARM CHIPPER:

The Fitchburg Farm Chipper is engineered for rugged, all-day service. Normal lubrication, with periodic sharpening of the tough chrome steel blades, keeps the Chipper on the go. Thanks to the Safety Spring-Activated Feed Plate, standard equipment on all Fitchburg Chippers, the Chipper adjusts itself instantly to different size wood to give safe, smooth chipping that keeps a Farm Chipper way ahead of clean-up crews. The economy and speed of operation will soon return the Fitchburg Chipper's price of $650 for the mulch Chipper; $960 for the bedding Chipper.

. . . WITH A ONE YEAR GUARANTEE:

The one year guarantee given with every Fitchburg Farm Chipper assures you peace of mind and guaranteed economy of operation. Find out how a Fitchburg Farm Chipper will save time, labor, and money on your farm.



Write for "WOOD CHIPS"

This free booklet gives complete details...see how other farmers use the Farm Chipper . . . compare the facts with your farm.

FITCHBURG ENGINEERING CORPORATION
Fitchburg, Massachusetts, Dept. FQ-68

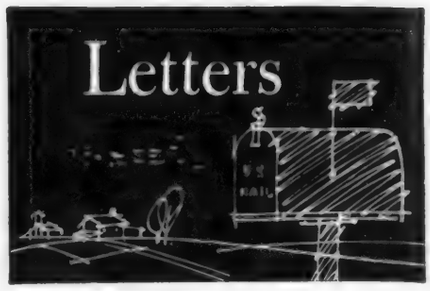
Send my free copy of "Wood Chips for Your Farm!" to:

Name

Address or R.F.D.

Town State

We have (Make and Model) Tractor



Sow It All?

Sirs:

Mr. Kolstad of Montana asks, "Are these government restrictions and regulations valid for the big fellow as well as for the little operator?" Daniel Webster tells me that "valid" means having legal force—well grounded.

I'll tell you of our own experience with them and there are many like us. We feel that since the "emergency" under which they were established has passed and since they have not accomplished the desired results, that the Federal government had better step out of the picture and let the farmer and State settle their own problems.

It seems to us that no one law of this nature can apply satisfactorily to all of our states where farming conditions are so very different. Again, we do not think it valid as we, along with two thirds of the wheat growers in Ohio, have never been allowed to vote in the referendum. That takes away one of our rights as an American citizen.

We are one of the "little operators" Mr. Kolstad mentions. We have one hundred twenty-nine acres of good land acquired from the government by our forefathers in 1817, the deed signed by President James Madison. This farm has produced a good livelihood and furnished a very pleasant way of life for several generations until these restrictions entered the picture.

We sell no grain to help increase the surplus, but in 1954 we were penalized for overplanting our allotment by nine acres. We have not paid our penalty so a lien has been placed on our real estate, at the County Court House, drawing interest at 6 per cent. We belong to the Associated Farmers of Richland County, Ohio, who feel that the controls are unconstitutional and very definitely Socialistic. These cases are always refused a jury trial, which our Constitution guarantees to every citizen. The courts say they have many ways they can collect these penalties—as an example, they have attached one man's automobile.

This is, of course, just one of many ways in which a large majority of the American people are giving themselves over to Socialism—perhaps they don't realize it—perhaps they want it—we don't.

Mrs. J. R. Lawrence
Route No. 1, Lexington, Ohio

Wrong Herringbone

Sirs:

I was very interested to read in your Winter Quarterly about the herringbone milking parlour, but I was very surprised that you say that the farmer Ron Sharp evolved the idea some five years ago. The system was first thought out twenty years ago by the two Shanks brothers who were then milking in the southern Waikato district and many farmers have used the idea since then. Ron Sharp is married to a relative of the Shanks family and he has simply carried out their idea.

I don't suppose your American readers will care if the system has been in vogue for five or twenty years and I don't suppose you knew that your Journal would be read in New Zealand, but I am sure you would like to main-

(*Continued on page* 138)

Save up to $3.85 per 100 lbs of gain

CATTLE GAIN FASTER UNDER ALUMINUM SHADE

• pays for itself first year • reflects solar radiation away

Cattle shaded under light aluminum roofing make summer gains a lot cheaper than cattle fed in the open. New University of Arizona tests show that yearling steers shaded under aluminum gain 100 lbs at a $3.85 lower feed cost than unshaded steers. Heifers shaded under aluminum make similar gains at savings of $2.90 per 100 lbs gain.

Steers on test at the Yuma Agricultural Experiment Station gained 2 lbs per day under aluminum sheds. Steers in the open gained 1.64 lbs. Similar steers shaded under palm-alfalfa thatch and steers under crisscrossed snow fence gained significantly less, and at a higher cost. To sum up—aluminum shading just about pays for itself the first year.

Aluminum's ability to reflect away most solar radiation brought the faster, more profitable gains, Arizona researchers say. Maximum daily thermometer readings during the 120 days of the Yuma research last summer averaged 107 degrees in the open, 103 under aluminum.

If you raise livestock, shade shelters and other pole buildings of heat-reflective Alcoa® Aluminum will help you make the top dollar. If you'd like Alcoa's free catalog of pole building plans, send the coupon below.

ALCOA ALUMINUM

Your Guide to the Best in Aluminum Value

"ALCOA THEATRE"
Exciting Adventure
Alternate Monday Evenings

Aluminum Company of America
1218 Alcoa Building
Pittsburgh 19, Pennsylvania

☐ Please send Alcoa Pole Buildings Plans Catalog

☐ Please send information about Alcoa Aluminum Farm Gates

Name_____

Address_____

Post Office and State_____

☐ Farmer ☐ Dealer ☐ Student

"PUMP AND POWER MUST MATCH FOR ENGINEERED IRRIGATION"

says Shannon McCampbell, irrigation engineer and owner of Shannon McCampbell Company, Knoxville, Tenn.

"With prices what they are these days, you've got to watch your production costs like a hawk. And using a 'Jim Crow Rig'—an old-fashioned pump and a misfit engine—can be an expensive mistake.

"Pump and engine must be *matched* for peak operating efficiency. Realizing this, Gorman-Rupp introduced a matched package unit in 1939. Since then, new developments and improvements have been tested on their engineers' own farms. No wonder they make the best irrigation pumps available.

"Take *this* Gorman-Rupp pump design for instance. Notice how the intake and discharge are horizontal, and low to the ground. Makes it easy to hook up lines. Eliminates elbows that restrict water flow.

"Check valve problems have been licked with an automatic check valve that *seats out of the water flow.* And the shaft seal is kept under vacuum so that the seal is protected from water-borne abrasives. Gorman-Rupp was also first to supply an oversize fuel tank and safety switches so that pump and engine can operate for hours unattended.

"There are 50 Gorman-Rupp pump models. So when we go out to a prospect's farm, we can design an *engineered* irrigation system *that exactly* fits his requirements."

NOTE: *Why not see your Gorman-Rupp dealer today? Start cutting production costs—increase profits on your farm.*

THE GORMAN-RUPP COMPANY

305 Bowman Street, Mansfield, Ohio

FOUR FAMOUS CALVES— These Wayne-fed Polled Shorthorn calves made a top show record in 1957 for John T. Richardson and Sons, Clayton, Indiana. They won the coveted senior get-of-sire; junior get-of-sire; pair of calves, and first prize senior bull calf awards at the International Livestock Exposition... were undefeated as junior get and pair of calves at five major shows, and won five individual championships. The calf at right was exported to Scotland for $4,200. The Richardson herd has been fed Wayne for more than 25 years.

WAYNE FEEDERS ARE

Winners

In show ring, feed lot, production contests

At leading livestock shows and major production contests the country over, Wayne Feeders win top honors time and again, proving that Wayne Feeds consistently produce winning results . . . and *profit-making* results, for livestock and poultry raisers everywhere.

TOP HOG MAN—Dale Henriksen, Gray, Iowa, was rated tops among 25 Master Swine Producers in Iowa for 1957. His Wayne-fed herd had the best record, raising an average of 11.5 pigs per litter with daily gain of 1.3 lbs. They sold at 210 lbs. at 161 days. Henriksen fed the complete Wayne year-around program.

WINNING LEGHORNS—Graybill's Poultry Farm, McAlisterville, Pa., received the 1957 POULTRY TRIBUNE Trophy for highest average production among all breeders entering 5 or more pens in U. S. standard egg-laying contests. George and Leo Graybill report, "We have fed Wayne to our breeding flock for 17 years. We can recommend Wayne for high quality and good egg production".

TOP DAIRY HERD—The Maynard C. Moore registered Guernsey herd, Kent, N. Y., was tops in butterfat production last year in the New York State D.H.I.A. Two years ago Mr. Moore changed from another well-known feed to Wayne...result, feed cost per 100 lbs. of milk down 45 cents...production up an average 470 lbs. per cow. He is well pleased with his increased profits and says, "I also like the Wayne calf feeding program."

READY TO HELP YOU INCREASE FEEDING PROFITS!

For increased profits and improved feeding efficiency in producing meat, milk, or eggs, ask your Wayne Dealer or write for championship feeding programs for poultry and livestock.

WAYNE FEEDS

Allied Mills, Inc. *Builders of Tomorrow's Feeds . . . Today!*
Executive Offices: Chicago 4, Ill. Service Offices: Fort Wayne 1, Ind.

THE MOST DYNAMIC FEED BAG IN HISTORY... AND STILL IMPROVING

Fifty years ago a small group of dedicated men formed the American Feed Manufacturers Association. Today, feed companies in all of the 48 states are working with practical feeders like yourself, with university and private research organizations to bring science to your farm in a feed bag.

In this time, more progress has been made in the feeding of livestock and poultry than in the thousands of years since man first domesticated the wild animals and birds of the forests and plains.

This progress has helped you produce more meat, milk and eggs at more profit . . . faster . . . on less feed . . . with less risk from disease.

But a scientist recently estimated that only 30% to 50% of major nutritional findings of value have been uncovered to date!

What does the future show? A pound of gain from a pound of feed? Breeder feeds that produce disease-free offspring? Feeds that ward off flies and other insects? New additives that will help produce even faster gains on less feed?

Many of these advances may not be as far away as you might think. Feeds are moving ahead—fast. Keep in touch with your feed man, because:

Science Comes to the Farm in a Feed Bag

A "well done" to the feed industry
on its golden anniversary
from Chas. Pfizer & Co., Inc.

RIGHT NOW! YOU CAN MAKE SURE THIS YEAR'S CROPS BRING

MORE INCOME!

Test Your Soil, Like 1,000,000 Farmers Do, And Get EXTRA BUSHELS, MORE TONNAGE, HIGHER PRODUCTION

Lack of the right fertilizer cuts your profits, as in corn corp above. Ear 1 was grown in balanced soil. The stunted, deformed ears come from poor soil, (2) lacked nitrogen, (3) needed phosphate, (4) was potash starved.

Wheat tested by leading ag college increased yield ten-fold with proper fertilizer. Note vigorous root system, heavy top growth. Even when only lacking phosphate or potash, yield dropped as much as 40%.

"I Can GROW 'EM BIGGER, BETTER because I always SOIL-TEST every field."

Want a bumper crop off each acre you grow this year? Any farmer would be proud to boast 225 bu. corn, 125 bu. wheat, 750 bu. potatoes or 30 tons of tomatoes. That's a record-breaking yield per acre for any man's land. It all depends on the soil and what's in it. The finest seed, ideal weather and all the work in the world won't bring in that bumper crop if your soil is not fertile. Yet you can greatly increase your crop *this year*, by testing your fields now and supplying what they lack. Correct fertilizing is the *only way* to wake up slow, sluggish soil and make it work right to give you the big, full, healthy yield you want.

Soil experts will tell you side dressing this summer gives many crops a bigger boost than fertilizing just in the spring. Whenever you fertilize, be careful how you spend your money. Trial and error are costly. The wrong fertilizer wastes time, labor, and money. It does more harm than good. Test your soil, field by field, and know *for sure* what it should have. Treated right, poor fields turn like magic into money-makers and the good ones produce like never before. You'll get back up to $15 in extra yield for every dollar you spend on fertilizer, if its the right kind and the right amount.

IT'S PLAIN FOOLISH TO TRY TO OUTSMART NATURE

The farmer's best friend is Old Mother Nature. She'll do her part, with sun, rain and fertile soil, to provide a bountiful return for your work. Sometimes she needs help, like nourishing depleted and exhausted fields. A quick, simple Soil Test can tell right away what every part of your farm has or lacks in vigor and vitality. It quickly points out the poor spots that need attention. The best preparation and care cannot force a field that is lazy and worn out. Before you spend another dollar on fertilizer, learn what is missing with an economical, do-it-yourself Soil Test. Use the handy, simple Sudbury Soil Test Kit NOW and save yourself weeks of work and disappointment. You can't fail. On crops already started, you can make sure they finish high, wide and handsome instead of miserable failures through lack of the right fertilizer, or too much of the wrong kind.

How do you know what your soil needs to give a full, abundant, healthy yield? Some farmers may be content to guess and fertilize "by gosh and by golly!" But one mistake now, or before you plant, can spoil a field before it has a chance. An Illinois farmer thought he needed 235 tons of limestone, but soil tests proved he didn't. He saved $500 which paid for the phosphate he really needed on 65 acres. So why take costly chances when the Sudbury Soil Test Kit has the answer?

TEN MINUTE TEST COSTS TEN CENTS!

So simple anyone can use it. Even your first tests will be accurate and reliable. Ready to use anytime, anywhere, even out in the field. Takes only 10 minutes, costs less than 10c a test. No delay waiting for reports—*you get the correct answer right away.*

BETTER CROPS GUARANTEED!

We are so certain you'll get bigger yield and better quality with your Kit, we'll refund the full purchase price anytime this year, if you don't!

THE FARMERS DeLUXE SOIL TEST KIT $29.95

Money Back Guarantee

Hardware, Seed, Grain and Farm Supply Stores: Serve Your Customers by Carrying This Essential Aid to Better Farming. Write for Special Offer.

Easy As Reading A Thermometer

NO KNOWLEDGE OF CHEMISTRY NEEDED

Complete with everything for hundreds of tests. More valuable than all your stock and tools! Shows right amounts of nitrogen, phosphate and potash for each field. Also whether lime is needed (pH) and how much. County agents, ag colleges, vo-ag schools and progressive farmers everywhere depend on it. Lifetime welded steel chest with carrying handle. Easy instructions show needs of 225 different crops.

Don't wait for poor crops to show your soil is sick. Your Soil Test Kit tells what is wrong even before plants show any sign of failure. It shows how to correct conditions before it's too late. Testing your soil now, this summer, can quickly increase 1958 profits.

Order Today -- Send No Money!

C.O.D. *only $29.95* plus postage. Or send check and we'll pay postage, saving you from $1.91 to $3.55 in postal charges.

FREE BOOK In addition to saving postal charges, we also include the valuable 64-page book on farm management "Our Land and Its Care" FREE with every order when check or money order is enclosed.

Also sold on Easy Payments. See Coupon.

SUDBURY LABORATORY, Box 96K, Sudbury, Mass.
Send me the Farmers DeLuxe Sudbury Soil Test Kit at the special low price marked below:

☐ Enclosed is $29.95; send postpaid; include free book, "Our Land and Its Care."

☐ Send C.O.D. only $29.95 plus postage.

Name.....

R.D. or St......

P.O...... *Zone*..... *State*.....

☐ Send on Easy-Payment Plan—I'll pay mailman $4.95 plus postage, then 4 monthly payments of $6.75 each.

OVER 500,000 Sudbury Soil Test Kits in Use!

SUDBURY Soil Test Kits

SUDBURY LABORATORY **Box 96K, Sudbury, Mass.**

"We get Heifers into the Milking String 4 months earlier...*

...by Feeding the Rumen Bacteria"

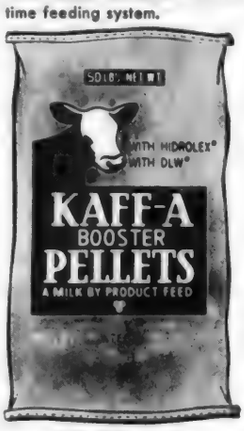
KAFF-A BOOSTER PELLETS

Properly developed rumen bacteria mean cattle can eat more roughage and do a better job of digesting all their feed. New KAFF-A BOOSTER PELLETS feed the rumen bacteria pre-digested milk sugars and partially digested albumins and other proteins.

Because bacteria in the paunch are more numerous and active as a result of this special feeding, heifers grow faster and are ready to breed earlier. On the milking line, producers fed Kaff-A Pellets consume more roughage, speed up digestion and make more milk from low-cost feeds.

Less Than Three Cents Per Head Per Day is all it costs Pooler Farms to put their big growthy heifers in the milking string four months earlier. THREE CENTS per head is all it's costing them to increase consumption of corn-sorgo-soybean roughage 50% for heifers and cows in the milking string.

*Carl Pooler (left), owner, and Carl Dagger, tenant on the Pooler farms, Urbana, Ohio, with Holstein heifers ready to calve at 20 months on the Kaff-A Lifetime feeding system.



Tree Tolder "unlocks" low-cost roughage and grain for your herd to boost dairy profits. Ask your feed dealer or milk hauler. Or write us for Kaff-A System Folder and locations of "Example Herds" in your milk-shed where you can see the Kaff-A System in operation.

KRAFT FOODS
Division of National Dairy Products Corp.
Chicago, Illinois

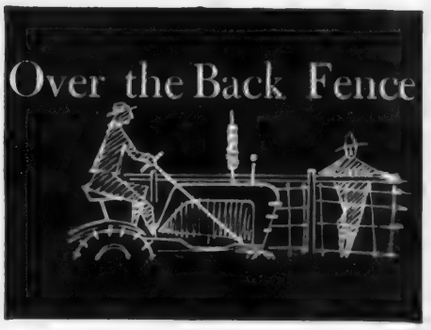
ONLY $5.80 50-lb. bag

JUST A QUARTER POUND Kaff-A pellets is all you need to feed per head per day. This amount supplies sugars, proteins and fermentation products to feed rumen bacteria—plus a "carry over" of quick energy milk nutrients, vitamins, minerals and antibiotics. A 50-lb. bag is a 10-day supply for 20 head—costs only $5.80 at your feed dealers or milk plant.

New KAFF-A Milk Replacer Builds Up Rumen Bacteria to Prevent Weaning Set-Backs

Amazing New Golden Rich Kaff-A Milk Replacer supplies entire nursing needs average calf for less than half cost of milk—supplies pre-digested milk sugars and proteins; animal fats, vitamin and antibiotic protection to wean heavier calves without set-backs.

Only $3.95 25-lb. Box



How Multiple Can You Get Perhaps it was all this multiple farrowing publicity, it's hard to say, but one sow decided to put an end to all farmers' boasts about three litters a year. On the Howard Wieland farm, Osage, Iowa, this prolific critter dropped two litters totaling 27 pigs in 17 days and raised 16 of them.

The first bunch was 15 pigs, on February 6 when the temperature was 21 below zero. Seven of the litter were lost, but 8 stayed strong and healthy.

Not content with this she came through with 12 more on February 23, and 11 of them were alive. Dr. Robert Loften, of Osage, verified they were all from the same sow and suggested a foster mother for the new batch. Eight of this litter survived.

The boar in this case had run with the sow herd for four or five months before the spectacular farrowing. The double litter probably resulted from an unusual double fertilization, one litter in each horn of the sow's uterus, 17 days apart.

Wieland hasn't decided if he'll save gilts from this freakish litter. Would you?

Shoot Them to Sleep A new day is dawning for farmers who have fractious livestock, wives who have perambulating husbands, and whoever catches lions and tigers when they escape from a circus. A new gun is on the market which fires a tranquilizer cartridge from as far away as 50 yards. Anybody ought to get that close to even the most belligerent bull, husband, or lion.

A 50-caliber rifle, powered by carbon dioxide, is used to fire the cartridge. The cartridge is fitted with a hypodermic needle and drug chamber. On impact, an inertia mechanism sets off a chemical reaction between carbon dioxide tablets and water in the posterior part of the cartridge, forcing a rubber piston forward. The forward action of the piston ejects the drug through the needle and into the muscle. A hub halfway up the needle keeps it seated in the flesh for a minute or more allowing complete injection. The cartridge can be reloaded and used over and over again. Effective range of the instrument is about 30 yards; maximum range is 50.

The drugs demonstrated were nicotine and tranquilizer. A nicotine and tranquilizer combination achieved chemical restraint in a very few minutes. Tranquilizers alone needed a half-hour to take effect.

THE NEW OLIVER SELF-PROPELLEDS

Already tops in capacity, just see what they give you now!

THE ROW CROP HEADER cuts, shells, shreds. Cuts your stalks just above the ground...sweeps them butts-first directly into the cylinder. Ears are shelled in the *combine* (none shelled out in the field). Cobs are broken up...stalks thoroughly shredded...then spread as a mulch that plows under with ease. Excellent for grain sorghums, too!

It isn't news that Oliver self-propelleds have about the biggest separating and cleaning capacity of any combines you can own. They had that even before.

What *is* news is the host of new features for '58—improvements that boost your power, increase your speed, push capacity higher still. On the new Model 40, for example:

- ***Engines.*** Boosted to 70 h.p. Choice of gasoline or diesel.
- ***Transmission.*** Hydraulic variable drive gives you smooth, infinite speed control—in any of six forward speeds. No more shifting down.
- ***Grain Tank.*** Up to a whopping 57 bushels!
- ***Improved Row Crop Header*** (see photo). Oliver makes your combine truly an all-crop harvester.

For all their new features—and their colorful new look—the '58 self-propelleds retain all the good things you've come to expect with an Oliver. Ground-hugging stability. Straight-to-the-cylinder feed. Choice of headers: 10, 12 or 14 feet. But now, with so much *more*, Oliver is the one to see—for sure! See your Oliver Dealer.

The Oliver Corporation, 400 W. Madison St., Chicago 6, Ill.

OLIVER **OLIVER**

"FINEST IN FARM MACHINERY"

Also Manufacturer of the Famous Oliver Outboard Motors

Modern corn farmers

EARN A BONUS ON EVERY BUSHEL

the Butler Stor-N-Dry way!

This last fall, Butler helped you take a big step forward in modern corn farming methods. At test locations all over the corn belt, special Butler STOR-N-DRY® systems were set up and put to work storing and drying sopping wet corn. Moisture content averaged 25-28% and went as high as 32%.

Days later, with moisture content down to 13-14%, the corn was worth as much as 25¢ per bushel more. And it was safe for all-winter storage as feed or under government loans.

This was conclusive proof that Butler STOR-N-DRY—the first truly safe way to store and dry grain *in the bin*—could be used with wet corn. It means that now you can store shelled corn right out of the field—dry it at low cost—and hold it in top condition until you are ready to sell or feed it. You can harvest earlier and avoid heavy field losses—cut your storage space in half by handling shelled corn—cut labor by using picker-shellers, corn combines and augers—up-grade your corn for higher cash prices.

STOR-N-DRY lets you earn a bonus on every bushel all these ways while saving the cost of a single-purpose dryer. It costs only pennies a day to operate—pays dollars in return. Unlike risky imitations, the dependability of STOR-N-DRY is field-tested and approved. For details, mail coupon.

SPECIAL CORN DRYING PACKAGE

Butler bin with Super Air-Flo perforated floor, Force-Aire® fan and special Intermediate heater has been developed especially for corn. "Packages" are matched to your moisture conditions and harvesting methods.

BUTLER STEEL PRODUCTS

Manufacturers of
Equipment for Farming, Dry Cleaning
Oil Production and Transportation
Outdoor Advertising
Metal Buildings • Custom Fabrication

Factories at Kansas City, Mo.
Minneapolis, Minn. • Galesburg, Ill.
Richmond, Calif. • Birmingham, Ala.
Houston, Texas • Burlington, Ont., Canada

For prompt reply, address the office nearest you

BUTLER MANUFACTURING COMPANY

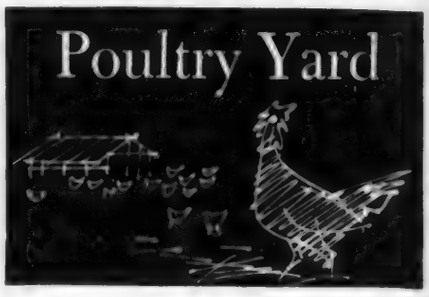
Dept. 378, P.O. Box 7027, 1020 E. 63rd St., Kansas City 13, Mo.
978A Sixth Avenue, S.E., Minneapolis 14, Minnesota
921 Avenue W, Ensley, Birmingham 8, Alabama
Dept. 78A, South 27th St. and Butler Avenue, Richmond 1, Calif.

Please send full details on Butler STOR-N-DRY System for corn.

Name .....

RFD No. .....

Town ..... State .....



Spring has Sprung Latest lighting technique for layers convinces them it's spring all the year round. Called "Stimulight," it was developed by Professor Dale F. King at the Alabama Polytechnic Institute.

Chicks, kept in a darkened house, are restricted to six hours of light a day until 20 weeks of age, and then the length of their day is gradually increased over a year's egg production. Doane Agricultural Service tested the system under actual farm conditions, and concluded the increasing exposure to light does give higher egg production over the year.

Top breeding, feeding, housing and management are essential to get maximum results from the method. The light is increased 18 minutes at the beginning of each week after the 20th week. The production in the test flock was 236 eggs for eleven months. A control flock laid only 209 eggs in the same period. This greater production was achieved in spite of the fact that the Stimulight flock reached 50 per cent production two weeks later than the check flock and had a higher culling and mortality number.

Double-yolked Double-shelled Odd egg pair in the photo was from the Wally Schulz Farm, Elkhorn, Wisconsin, where the smaller egg was laid packaged in its bigger brother.

Mother of the concentric twins was a White Rock chicken, who was probably as surprised as the Schulz family. They haven't seen a similar pair in 41 years of chicken-raising.

Usual result of such large eggs—this one was 12 inches around the long way—is damage to the laying organs and death to the hen. The practice is, therefore, not recommended.

Anti-Blackhead A drug used to prevent and control Blackhead in chickens and turkeys is now available as a premix to use in feeds. The drug, HepZide, was marketed last year for use in drinking water. The manufacturer, Merck & Co., claim effective prevention of deaths from Blackhead in turkeys and chickens, with no side effects from the drug.

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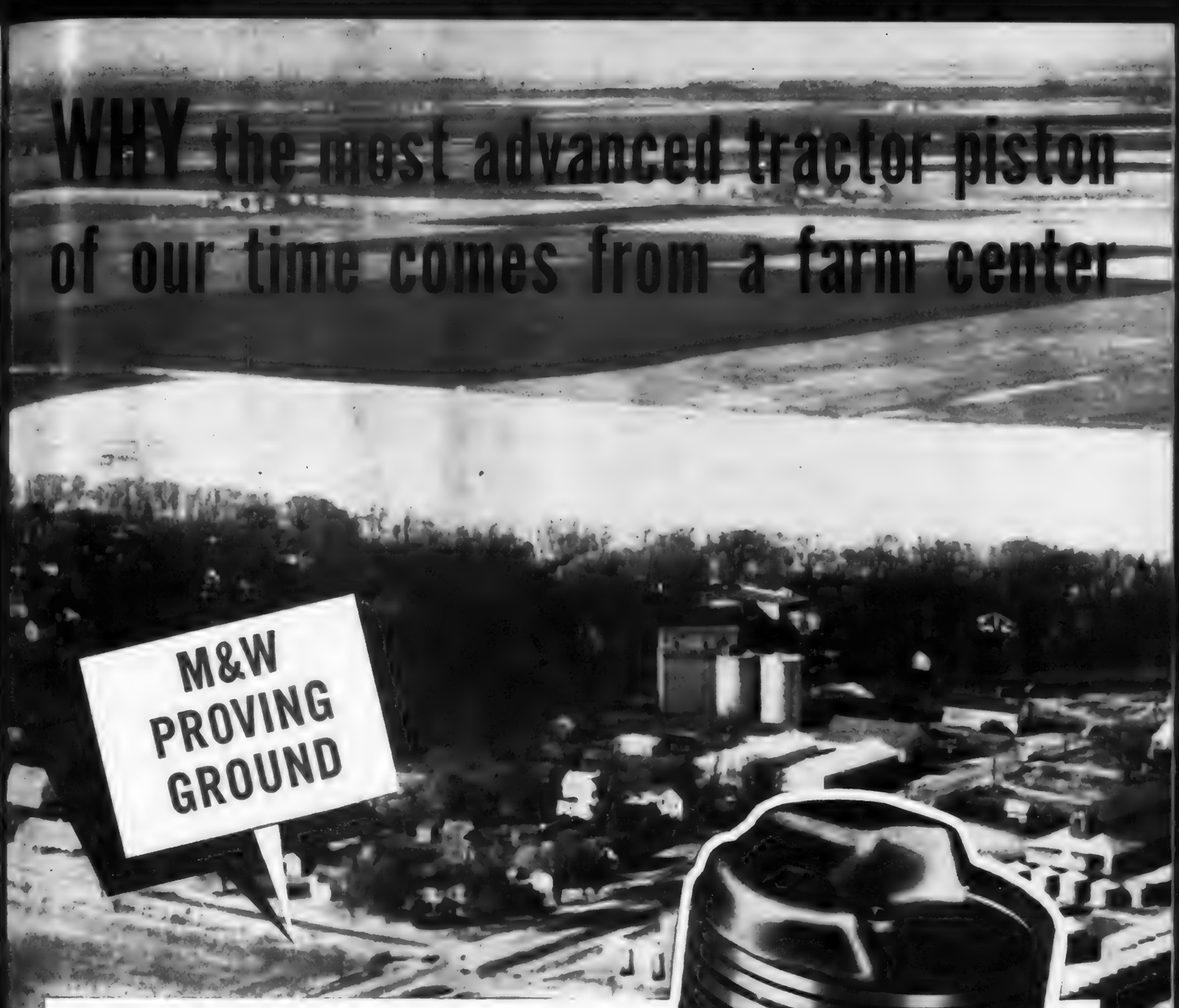

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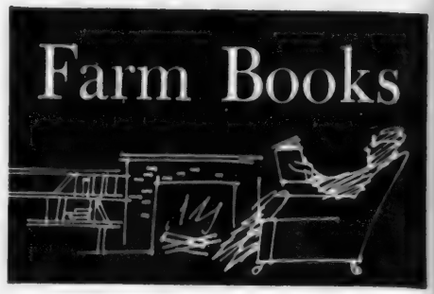


Farm Prices—Myth and Reality, *by Willard M. Cochrane. University of Minnesota Press, Minneapolis. $4.00.*

"Agricultural prices and production will both automatically adjust themselves to a desired level if we can get rid of the surplus and stop government controls and supports." This statement, according to Dr. Cochrane, is one of the great economic myths of our time. If you happen to believe the statement, you are not alone. Many, possibly a majority, of our political leaders believe a free agricultural economy would be self-adjusting and that our present supports and controls should be designed to get agriculture on an even footing. Many economists, too, would support the statement.

The reality, Dr. Cochrane maintains, is a price system which operates under the drastic influence of rigid, inelastic demand for farm products and the considerable variation in production. Such a situation makes for wide fluctuations rather than self-correcting, stable prices.

Dr. Cochrane has written this book specifically for the intelligent farmer and worker in agriculture. His unusually clear style makes for pleasant, even exciting reading—and this includes the one chapter which he admits in the preface is "tough going."

The Marketing of Livestock and Meat, *by Stewart H. Fowler. Interstate, Danville, Illinois. $7.00*

Stewart H. Fowler, Associate Professor of Animal Husbandry, at the State College of Washington, has produced in this book a work which can be summed up in one word—comprehensive. It is almost impossible to name any segment of the livestock marketing business that is not treated in detail or on which one could not pick up a lead for further research through the bibliographies appended to each chapter.

Yet the approach is very down to earth and reflects the thinking of a practical man who declares that "livestock marketing has served not only as my vocation but also as my hobby. It is a fascinating activity which has kept me on the edge of my chair at auction markets many nights until well past midnight."

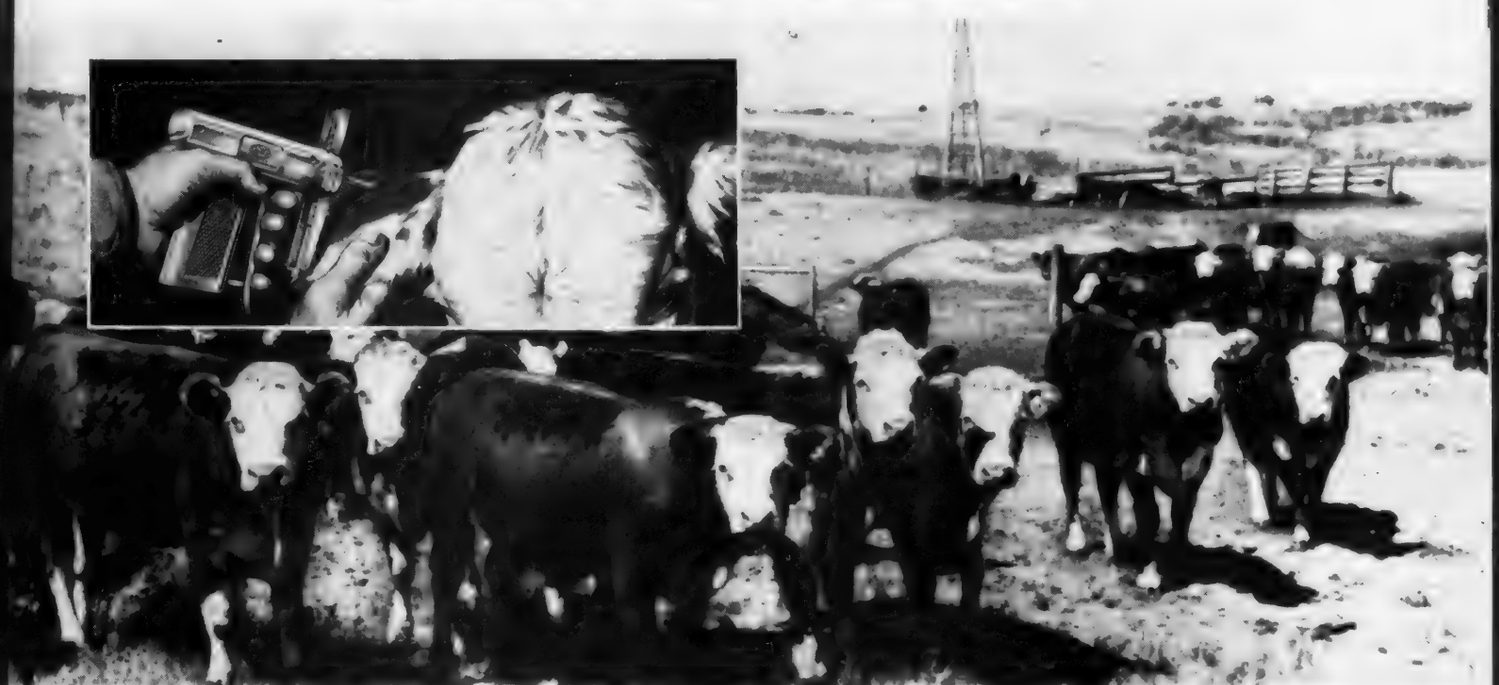
The presentation takes the reader step by step from a general view of the livestock marketing and packing industries

(*Continued on page* 136)

NEBRASKA RANCHER'S PASTURE RESULTS SHOW

An extra 24 lbs. gain per head

In addition, University trials show that only two Stimplants give 30% better gains over controls



Stimplants helped these cattle at the Robert H. Ray Ranch in Nebraska gain an extra 24 lbs. in an 89-day grazing trial last summer

A new system of boosting cattle growth now makes it possible for range and pasture feeders to reap the full benefits of stilbestrol.

Cattle are implanted with one or two Stimplant pellets, depending on animal's weight, in the base of the ear . . . turned out to graze . . . and the job's done.

The result . . . as shown in a summer trial on the Robert H. Ray Ranch in Antelope County, Nebraska—*more profit . . . faster gains.* Here's the record.

Cattle were grazed for 89 days. Steers implanted with two Stimplant pellets gained an extra .27 lb. per day . . . totaled an extra 24 lbs. gain . . . grossed an extra $4 a head over control animals (on today's market it would have been $6 a head).

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These trials show range and pasture feeders can now profit from faster stilbestrol gains, formerly limited to cattle on supplemental feeding. There's no problem of some animals getting too much stilbestrol, others too little . . . no danger of breeding stock getting stilbestrol accidentally.

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Rugged construction unconditionally guaranteed

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Hard worker . . . light appetite! Dodge Power Giants are 4-way leaders of the low-priced 3!

Dodge *Power Giants* are hungry for just one thing—work. Your *Power Giant* is always eager to tackle your toughest hauling job out in the field, and is so easy-riding and eye-catching you'll be proud to drive it on trips to town. Fact is, once you've gotten behind the wheel, you're sure to agree that Dodge leads the low-priced three *all four ways:*

Dodge is first in styling! You get style that *stays* in style—sculptured, flowing lines, massive chromed grille, striking dual headlights.

Dodge is first in V-8 power! Up to 27.5% more power than competitive farm trucks—for extra pulling power . . . safer highway passing . . . less engine strain and wear. Thrifty Dodge Sixes, too!

Dodge is first in payload! *Power Giant* construction adds strength without weight, to let you haul up to ⅓ more each trip. Saves time and fuel!

Dodge is first in economy! Dodge has low *first* cost, low *operating* cost. Exclusive Power-Dome V-8 engine design gives top mileage and stays healthy on low-cost *regular* gas!

Buy your next truck the way you buy your other farm equipment: *compare* before you buy. And be prepared to be surprised at your Dodge truck dealer's deal—thrifty, dependable, hard-working *Power Giants are priced with the lowest.*

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You get cleanest picking, cleanest husking, more down corn with the NEW IDEA One-Row picker. Floating points hug ground contour at all times. Triple gathering chains pull in down stalks. Long husking rolls deliver clean corn to the wagon elevator with a minimum of shelling.

NEW IDEA ONE-ROW PICKER

PICKS CLEANEST

HUSKS CLEANEST

GETS MORE DOWN CORN

NEW IDEA picker is engineered for greater convenience, safety, and economy . . . Includes 10 important features which farmers themselves have asked for

We asked thousands of farmers what they liked about their NEW IDEA pickers. They told us: "NEW IDEA pickers pick cleanest. NEW IDEA pickers husk cleanest. NEW IDEA pickers get more down corn." We believe that's why more farmers buy NEW IDEA pickers than any other make.

In addition to these three important features the NEW IDEA One-Row picker, shown above, has 10 plus features for greater convenience, safety and economy:

1. 30% reduction in number of grease points through liberal use of greaseless bearings.

2. Bank of grease fittings for simple lubrication of husking bed — a NEW IDEA exclusive.

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5. Full-length permanently shielded PTO shaft gives increased safety.

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By John F. Hughes

Keeping hogs heat-happy is more than good sense— it's good bacon business

Fogged Hogs

Gertrude and George with their mud facials, opposite page, lie blissful, cool, happily ignorant of the sanitation problem surrounding them. The shower, above, is a more healthful means to a cool end. The snifter, left, feeding cold air to the farrowing crate at normal breathing rate is a drier answer. Is that a smile on her face?

"ONE OF THE BEST investments I ever made was the handful of change I spent for 12 feet of plastic lawn soaker," said Ed Hockaden, who farrows and markets 350 hogs a year from his 80 acres near Greensburg, Indiana. Scratching on a hog's ear, he continued, "Using the soaker to spray a fine mist of water on my hogs, I've cut my hot weather feeding costs two and a half cents a pound of gain, figuring corn at $1.25 a bushel."

Only recently hog men have faced this problem of swine cooling. For decades the popular topic has been how to keep them warm. But with the increase in confinement feeding, multiple farrowing, and the movement of hog production to the south and west, hog farmers are now interested in cooling their pigs.

Hogs Like It Cool

Scientists know the ability of an animal to convert feed into meat, milk or eggs depends a great deal upon the environment. Using an insulated room where the climate may be regulated, researchmen have found hogs weighing about 100 pounds perform best at a temperature of 70 to 75 degrees. Hogs of 150 to 250 pounds put on the best gains at about 60 degrees. The heavier hog has a thicker fat insulation which keeps his body heat from escaping.

All warm-blooded animals attempt to maintain a constant body temperature. However, the hog doesn't sweat much and has one of the poorest temperature regulating systems of any of the domestic animals. The digestion of food generates heat and the hog has a very difficult time losing this heat in hot weather. At a temperature in excess of 100 degrees the feed consumption of the hog drops to about two pounds per day, and he loses about two pounds of body weight per day. At a constant temperature of 92 degrees, it takes a hog 12 pounds of feed per pound of gain.

Researchers found fans by themselves do not provide enough relief for swine. However, a combination of water spray and fan does help. The spray provides artificial sweat, the evaporation of which cools the animal.

European hog men make use of fans alone in their hog barns, but their buildings are quite different from those on most American hog farms. Their buildings are thick walled, permanent structures with a loft overhead. Because of this construction the interior temperature of the buildings is usually comfortable. A fan, if used, merely helps circulate the cool air.

Other research has also shown hogs normally lose heat by three methods: by conduction to the surface on which they are lying, by convection to the surrounding air, and by evaporation of moisture from respiratory tract, lungs, and mouth. At 80 degrees Fahrenheit about 40 per cent of the heat loss of a hog comes from evaporation of moisture in breathing and at 100 degrees this has risen to about 90 per cent of the total.

It is common practice to heat the concrete slab to provide a warm and dry surface in cold weather. Now, scientists are trying a coolant in coils under the floor. Studies at Purdue University show that a 150-pound hog on a refrigerated slab may have an increase of .3 to .4 pound in daily gains when air temperatures are at 90 degrees plus.

Tests at Oklahoma State and Purdue Universities have shown hogs fed on concrete with a water spray available gain faster and cheaper—3/10 pound more per day than hogs on dry lot with only a shade available. They also use 30 pounds less feed for 100 pounds of gain.

Sprays

Ed Hockaden determined to solve the cooling problem a few years ago when he built himself a 28 foot by 42 foot completely equipped feeding floor. Doing all the work himself, it took him three weeks to complete this floor to carry 80 hogs in winter or 60 in summer. Hogs have a habit of bunching together in winter and spreading out in summer. On the north side of the feeding floor is a shelter 10 foot by 42 foot by 5 foot high that looks like a dugout in a baseball park. This wood frame shelter has

(*Continued on page* 103)

The Monroe milking barn is tied to its twelve corrals by fenced alleys. Each corral can be reached by truck on two sides for feeding and loading manure.

Co-op milking barns rescue small dairymen by cutting costs and giving them markets

By Grant Cannon

CONTRACT MILKING

MILKING THE COWS morning and night every day of the week, on Christmas and birthdays, in sickness and health, in youth and in age, for time and eternity is the life sentence of most dairy farmers. And, if they produce Grade A milk, they must make a whopping capital investment for the privilege.

While Secretary Ezra Taft Benson, the Congress, and the President tug and tussle over the price supports to keep fluid milk prices from liquidating the dairyman, a group of the Secretary's fellow Mormons in Utah have done something about cutting their investment, increasing their income, and ridding themselves of the milking job. Farmers in Wisconsin and Iowa and others who have heard of the Utah experiment are planning to follow suit.

Basically, the Utah plan is for a group of dairymen to share the costs of building a Grade A milking parlor and the expense of hiring labor to do the milking. They also pool their bargaining power to fight for a market and to get the best possible prices for supplies.

There are nearly a dozen of these contract milking co-ops operating in Utah today. Their barns and their operations vary in details to fit the needs or the whims of their members. Different co-ops use DeLaval, Universal, Chore-Boy, and Surge milkers and barn equipment. Some hold the cows at the barn and some drive the cows to the barn for each milking. The object of each of them, however, is the same—to cut investment and labor.

The latest of these cooperative efforts is the highly successful Hi-Roe Dairy Association of Monroe, Utah. Being the newest of the contract milking co-ops, it is not surprising the Monroe group has also worked out the most modern solution to its problem.

Genesis at Monroe

"Tuck Fulmer and I used to get together two or three times a week and grouse about the price we were getting for our milk and about having to milk the cows every day," Floyd Mills, the handsome young farmer who is president of the Association, said. "Then, one day we decided to do something about it instead of just talking. We were C Grade producers and we wanted the extra income from A Grade. The Grade A market had been closed to us for a number of years and we needed a Grade A barn and some bargaining leverages with which to carve us out a market.

"We talked to a lot of the boys who were producing C Grade milk for the powdered milk plant here in Monroe. We suggested building a single Grade A milking barn and milk house all of us could use. Each of us would then have the use of a better barn and better equipment than he could normally buy and at about a half to a quarter of the price. With such a barn we would all qualify for the high priced, Grade A market.

"When we had about a dozen lined up," Mills continued, "three of us, Tuck and I and Wilford Murdoch, went up to Salt Lake, planning to choose the best company to deal with. We figured we'd have a number to choose from. What happened was, we got doors slammed in our faces by everyone but the co-op dairy, Hi-Land. They wouldn't promise us a thing until they had consulted their other members, but they were encouraging.

"You see," Mills added parenthetically, "they had a limited Grade A market and had all of their producers on a Grade A base. That meant Hi-Land agreed to accept a certain amount of milk from each of them at Grade A prices—that was the base—the rest of the milk had to be used for butter, cheese, ice cream, powdered milk and the like and was paid for at Grade C price. They couldn't promise to cut us into their Grade A market at the expense of their other producer members. We figured this was only fair. As

a matter of fact, their attitude gave us confidence in them.

"The upshot of the whole thing was that Dr. Louis Curtis, Hi-Land's general manager, came down and told us to go ahead and build our barn. He said that the Board of Directors had decided to open up a new Grade A market for our milk in Elco, Nevada.

"That was a headache. In Nevada you can milk your cow against a barbed wire fence and sell Grade A milk, but if you're an out-of-state producer," Mills said with a wry laugh, "you've got to meet the toughest standards of any state in the West."

With a market promised for their milk, the Monroe dairymen started organizing in earnest. They ran into everything from complete acceptance to violent opposition. Most of the opposition came from workers in the powdered milk plant who feared the turn toward Grade A production threatened their jobs. This they resented. The local banker encouraged the group to borrow—elsewhere. He didn't think the scheme would go and wanted no part of it.

In spite of the opposition the group incorporated in April, 1956, and elected officers. Tuck Fulmer, who is called Duane by his mother, was elected the first president. As a starting figure, they aimed at handling 200 cows. They asked each member to state the number of cows he wanted to have milked. Most of the 12 charter members increased the number they were then milking and the total for the group hit the 200 mark on the nose.

Stock was then issued at the rate of one share per cow to be milked. An assessment of $100 per share gave the Association a substantial treasury and put them in business. Twenty acres of rocky, useless land on the edge of town cost them $200 and another $160 was spent leveling it. The determination they showed seemed to inspire confidence. The local banker relented and handled their loans.

They decided to keep the cows at the barn and haul the feed to the cows rather than drive the cows to the barn at milking time as most of the other milking co-ops in Southern Utah do. Having made this basic decision they were ready to go ahead.

Building the Barn

"I'd hate to go through another summer like that one," Tuck Fulmer said. "We were trying to build the barn, milk our cows, and carry on our farm work— most of us raise a big crop of potatoes as a cash crop—all at the same time.

"Wilf Murdoch is a Surge dealer, but he had to bid on the job the same as any other equipment salesman," Fulmer said. "It pretty near would have killed the old boy if we'd have bought other equipment to milk his cows with, but we were pretty hard nosed about it. We were all relieved when he came up with the best bid.

"We got help in planning the layout from Surge and from Utah State College and from my father-in-law who teaches ag engineering at Brigham Young University," Fulmer continued. "We are pretty happy with the results. We built a seven-cow, walk-through milking parlor with a pipe line milker. In the milk room we installed an 800-pound weigh tank and a 2200-gallon bulk holding tank. We also put in the Electro-brain automatic pipe cleaner which is the labor savingest piece of equipment we own. The Association built and equipped the building and built the roads and installed water in each of the corrals. We left it up to each member to build his own corral."

Though each member built and paid for the fencing and the construction of a loafing shed in each corral, they all agreed to follow the same plan. Each corral has two sides bordered by roads for easy feeding; each has 150 square feet of corral space per cow and another 50 square feet per cow of covered loafing shed area. Though some members bought the lumber for the loafing shed and some drove their trucks onto the mountain and cut the timber they needed, the sheds themselves are remarkably uniform.

The Association members take particular pride in the inexpensive roof they devised for these pole frame sheds. They laid a gently sloping frame of poles and covered it with fine mesh wire to keep birds from penetrating the roof from be-

Each milking from each herd is weighed, right, in a scale tank before being pumped into the refrigerated bulk tank. Pails are used in the pipe-line parlor, below, for collecting colostrum from fresh cows and for periodic herd testing.

low. Over this they laid six inches of straw and topped this with four inches of Bentonite, a powdery mineral which is normally used to seal ponds and irrigation ditches.

"This Bentonite expands sixteen times its normal bulk when it gets wet and it slicks over to form a waterproof surface," Floyd Mills explained. "We figured that if it would stop seepage in an irrigation ditch, it would make a water-tight roof. It has. And it only cost us a dollar a cubic yard delivered here."

Milking started in the barn on August 1, 1956. "The first day or two was a real rodeo trying to get our cows to walk into that barn and to stand still for milking," Tuck Fulmer said. "It seemed like we had every able bodied man in town out here helping us shove them through. It's surprising, though, how quickly the cows got used to the routine."

Daily Routine

The procedure they have worked out is to hire four men to do the milking. Two of them, a milker and a helper, work the six-hour morning shift and the other two handle night milking. Milking starts at 4 o'clock, morning and afternoon, and by 10:30 at the latest the cows are all milked and the barn and equipment cleaned. Each herd is milked separately. The helper brings the herd to the holding pen, lets in seven cows, washes udders, and helps the milker in other ways. The milk from each herd runs through the pipe line to the weighing tank. When a herd is milked, the milker runs all the milk out of the line, records the weight of the milk, spoons out a sample, and runs the milk into the bulk tank. Barn records and Hi-Land Dairy records have always checked out. Hi-Land uses the barn records for making out the individual milk checks.

Each cow is fed a pound of mixed rolled oats and dried beet pulp at each milking. This feed is paid for by the Association. The individual owners take care of all other feeding. Most of them come to the barn three times a day to feed and look over the cows. "We could hire this done, of course," Wilford Murdoch said, "but we feel it is important for us to keep a close watch on our cows. When they're in heat we see to it they are bred. If they are off their feed we want to know it right now. If we hired someone to feed as well as to milk, we'd feel we just had an investment in a milk factory."

The members of the Association have all adopted the practice of feeding hay and silage summer and winter. Baled hay is kept stacked near the individual corrals; silage is usually hauled from the farm daily. The only time a cow gets onto pasture is when she is dry and has been taken back to the farm. When she freshens she is brought back to the milking herd. If she is returned immediately on calving, she is milked into a pail for the colostrum. Pail milking is also used for those on a herd testing program.

Costs and Base

Total cost of the barn and equipment was $32,058. With depreciation on the barn on a 40-year schedule and the equipment on 10 years, the depreciation bill comes to $1,698 a year.

The milkers get $8.50 a day; their assistants $8.00.

Last year the bill for labor, feed, electric power, supplies, depreciation and all other expenses came to $19,711.

The main source of income for the Association comes from a 25 cent per cow per day fee which is deducted from the milk check. Members are also assessed for the milking time feed. Last year's income came to $20,003. This was about right; the members don't want the Association to build up any large cash balance.

The Grade A milk base averages close to 30 pounds per cow. The base, however is assigned to the individual members of the Association rather than to the Association as a whole and is adjusted annually. The base-setting period runs from September through February. If, during this normally low producing period, a member exceeds his base, his base amount is raised by one-third of the amount of his excess over normal base. If, for example, a member had a base of 650 pounds a day for his cows and during the base setting period he milked more cows and averaged 950 pounds of milk a day, his base would be raised by a third of the difference or 100 pounds a day. If his total production is lower than his base during this test period, his base is cut by a third of the amount his pro-

duction is under base; just as it was raised when he was over the base amount.

Membership in the Association and ownership of a Grade A milk base are transferable. During the past year, two members decided to drop out. They found ready buyers for their cows, base, and membership in the Association at a price felt to be quite satisfactory.

Because of the different costs of the corrals—some have a cement slab around the feeding area, some were built with boughten lumber and hired workers—no two members place exactly the same value on their shares. One farmer, who felt he was about average, estimated his cost per share at $156. This gives him the use of a Grade A set-up for his 20 cows at a cost of $3,120. Grade A base is valued at from $5 to $7 for a pound base per day.

"We have all found that the regular milking routine has increased the output per cow," Floyd Mills said. "Some of us feel that this more than pays for milking.

"We still have problems," he concluded, "but working together we have been able to solve them without much trouble. Awhile back, for example, the dairy complained of off-flavor milk. We sampled the milk from each herd until we found the flavor was caused by the hay one of the members was feeding. By changing his feeding schedule a little he was able to get away from the milk flavoring.

"Most of us like the system of hiring our milking done in the summer when we have lots of field work and irrigating to do. In the winter, when we have time on our hands, we'd prefer to do the milking ourselves. But none of us would go back to the old system and Grade C milk."

A meeting of the membership is crowded into the furnace room of the Monroe barn to discuss wages, hours, and working conditions of their employees. Floyd Mills facing camera, is the president. At Minersville, left, the cows are brought to the barn for milking which starts at 2:30 a.m. and p.m. Cows outnumber people in this town where co-op parlors started.

Bring in the Cows

The most noticeable difference between the Monroe Association and the contract milking groups at other southern Utah points—Circleville, Beaver, New Castle, Hurricane, Veyo, and Minersville—is the holding of the cows at the barn. In the other co-ops, the cows are kept at home and are fed there; they are driven to the milking parlor twice a day.

The oldest and largest of these associations is at Minersville. Here 35 herds totaling 500 cows in milk, dawdle through the streets morning and night. The town itself totals 570 humans.

With 500 cows to milk in one barn, the work day almost meets itself coming and going. Milking starts at 2:30 a.m. and p.m. and doesn't stop until around 10. Once a month the man on the top of the list, who has been driving his cows to the barn at 2:30, is dropped to the bottom and everyone else moves up one notch. This makes a drastic change in milking for the one herd, the others get milked 15 minutes earlier than usual. Since there are 35 herds being milked, the big jump only comes every three years. This may be hard on the cows when they make the change, but no one wants to get up at 2:30 every night for the rest of his life. The remarkable thing is that there has been very little trouble getting each owner to drive his herd to the barn at his appointed time.

When the owner arrives at the barn with his herd, he then becomes the assistant and is responsible for washing udders and moving the cows through the parlor. The milking is done by experts such as Neal Davis, who has milked over a million cows since the Minersville Association started back in 1945.

Another important difference at Minersville is that the Association owns the Grade A base—11,610 pounds a day—and apportions it among the members according to the amount of milk they are currently producing. The Association Treasurer makes out all the milk checks.

The Minersville Association, according to H. A. Dixon, formerly president of the Utah State Agricultural College and now Congressman from this district, is one of the most successful small cooperatives in the country. The same group that formed the Association branched out and formed a land company which bought the Minersville Reservoir which has a holding capacity of 25,000 acre feet of irrigation water. "We paid $235,000 for it," Jule Gillins, the Treasurer of the Association, said, "and paid off the debt in six years. If

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Prepare for Drouth

Farmers and ranchers of Texas and the Southwest have learned how to stretch a raindrop and beat the drouth

By Brewster Owens

LAST YEAR one of the most devastating drouths in the history of the Southwest was moving into a seventh season as Henry Rompel, central Texas cattle, sheep, and goat raiser, strapped a portable flame thrower on his back and headed for a far corner of his water-starved lands.

He was on a daily, two-hour chore of pear burning. Clump after clump of the widespread, picturesque cactus was to be given a fiery blast from Rompel's burner —enough flame to remove the prickly pear's needle-like spines, but not to ruin the food value of the plant itself.

Following behind Rompel and the burner was a band of quality livestock, awaiting the chance to bite into the green, bald pear. For each cow, about 30 pounds of burned pear was a day's supply. Sheep and goats, of course, required less.

This was the same Henry Rompel who a year or so earlier had been selected the top conservation farmer in a 50 county area of Texas. He was quick to admit burned pear wasn't a top feed, but it did contain water and some food value, and livestock ate it. During a drouth, farmers and ranchers have to adopt drastic measures to survive.

What about your place? How drouth resistant is it? Could you stay in business if dry weather hammered away for several consecutive seasons as it did in the Southwest beginning in 1951?

Making your farm or ranch 100 per cent drouth-proof is a miracle you aren't likely to accomplish. You may be able, however, to reinforce its resistance substantially by borrowing ideas from men like Rompel, who know from experience the tricks that will carry you through.

In Texas, one of the hardest hit Southwest states, the ideas farmers, ranchers, and agricultural leaders developed fall generally into categories with these objectives: (1) To benefit from scant rainfall by stretching its use. (2) To develop irrigation systems to lessen dependence on spotty rainfall. (3) To use emergency methods when necessary to live with the drouth. In this category can be included such devices as prickly pear feeding, irrigating with sewage effluent, growing grains without soil.

Each of the categories was important to southwestern farmers for drouth survival. Irrigation systems enabled thousands of them to grow bumper crops even during dry seasons. Emergency measures gave many farmers and ranchers just the push they needed to last through the drouth. And certainly "stretching a raindrop" was a goal all could understand and strive for, usually without a great deal of expense.

The drouth measures developed in the dry southwest states included practices from each category—and they worked.

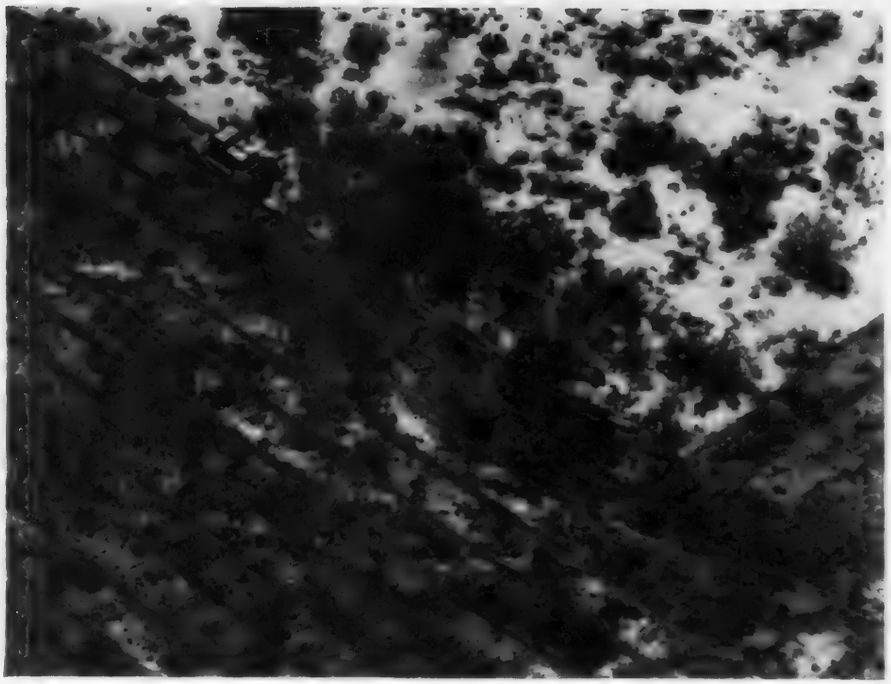
How to Stretch a Raindrop

Gin trash on cotton fields: For years it was accepted practice to burn burs and gin trash. This was costly to ginners and often provoked the neighbors who objected to the smoke. There was a change, however, when it was found burs and trash, if returned to the field to decompose, will increase fertility, prevent erosion, and loosen soils. Most important, soil treated with burs holds more water.

Tests at the Spur Experiment Station showed an area treated with four tons of burs and trash per acre allowed a rainfall penetration of 20 inches, compared to 15 inches without treatment. The water holding capacity of the soil increases as it is made more mellow and spongy by the additions.

Tests at the Lubbock Experiment Station indicated two tons an acre give the best value per ton. The value per ton,

With drouth comes dust storms. Cross-wind subsoiling in a strip pattern, left, holds the soil. The double-crawler rig of the King Ranch, right, knifes the roots of the water-drinking, grass-choking mesquite.



measured in increased cotton production, was $12.30 at two tons per acre, at four tons per acre it was $8.62, at six tons it had fallen to $8.30. A good estimate of the burs and trash available to the farmer is 400 lbs. per bale of cotton. So from bale-an-acre cotton it takes the burs from ten acres to treat one acre—but the treatment lasts several years.

Chemical and mechanical brush control: For decades, farmers and ranchers have known the value of controlling trees to preserve soil moisture, but drouth stimulated action. A new, popular killing method is air spraying of either Silvex or 2,4,5-T. Robert A. Darrow, professor of range and forestry at Texas A & M College, recommends a first spraying of 1¼ pounds of Silvex or 1½ pounds of 2,4,5-T per acre. About ¾ pound of either is enough for a second application if necessary. To apply, the chemicals are mixed with water and diesel oil, three gallons water and enough oil to make the whole spray four gallons per acre. Mesquite needs less than post oak.

Pelleted herbacides are becoming popular—scattered from the air, they melt with the first rain, and then are absorbed, killing the trees. In Montague County, Texas, a 98 per cent kill with two air sprays was reported. The pasture had been two-thirds covered with scrub brush and post oaks up to 15 inches thick.

Rootplowing is another successful brush controller. The rootplow is a long, knife-like blade weighing more than three tons. It is pulled through the soil, at a depth of a foot or more, by a heavy tractor. In addition to preparing the seed bed for grasses, it uproots or cuts the roots of brush. The hardpan of the soil is also broken, allowing for more penetration of water, with less run-off and erosion.

The King Ranch developed a Texas-style rootplow by welding two mammouth crawler tractors together after removing the inside tracks. Each engine then powered one outside track. This double-barreled power-pack draws the steel blade smoothly beneath a forest of mesquite.

Bulldozers, chains and cables were also effectively used on some ranges, and goats were helpful when used after other programs. Goats like brush and at least one rancher regularly cut his trees so his goats could feed on the tops.

Drouth resistant crops: A few seasons of dry weather point out the crops least suited to drouth. To replace them, agricultural experiment stations began work on drouth resistant varieties of mainstay crops —grain sorghums, cotton and small grains —and also introduced some relatively new crops which seemed to have more drouth resistance.

One crop recently developed is Renner's Number 15, a sesame variety noted for drouth resistance and adaptability to mechanical harvesting. Several varieties of grain sorghums are drouth resistant and Lovegrass and Coastal Bermuda Grass are two popular anti-drouth grasses. Coastal Bermuda has root penetration reaching to four and a half feet, allowing it to withstand dry weather better than shallower crops. Blue Panic Grass has also proved valuable.

A crop's resistance to dry weather in many instances has become more important than its producing ability. Many farmers during the drouth concluded they were on land not really fit to farm anyway, and called it quits. Some of them turned to new enterprises, others joined the trek to the cities. One interesting shift of land use occurred in East Texas. Thousands of acres of land switched from pine trees to row crops a few years back were, during the drouth, replanted in pines. Agricultural leaders tried to encourage this trend, recommending several million more acres be returned to the trees.

Home-town soil test: As the drouth closed in, soil testing became more popular. Farmers realized they couldn't afford to guess about fertilizer needs when they discovered fertility spared water needed to grow crops. An event in Baylor County, near the Oklahoma border, is an indication of how interest heightened. Following the lead of the county agent, leaders of the county financed and built a $3000 "home-town soil testing laboratory." They figured—correctly—farmers would be more apt to bring samples if a laboratory was close by. Within a year, the lab was swamped by samples and many farmers were learning the soil in Baylor County was much lower in potash and phosphorus than they had imagined.

Reservoirs and tanks: When Clyde Wells took over as manager of the big John R. Black Ranch near Fort Worth, there were already more than 30 ponds and several wells in use. But Wells, a former soil conservation man, nevertheless embarked on a program to build more reservoirs. At latest count, he had constructed 28 new reservoirs in a three-year period. This was his idea of insurance against the damaging effects of a drouth. Similar interest in reserviors and tanks was shown over the State when farmers saw the advantages first hand. When building tanks and ponds, farmers were encouraged to select a soil that would hold water (or else try some of the new liners which can be used to prevent leakage) and allow a watershed large enough to support the tank, lest it go dry during a period when needed most. Depth of water cuts down evaporation from a pond and emphasis has been placed on location, to make sure the best water-holding soil is used and that the watershed is large enough. The size of the watershed varies with rainfall, depth of pond, and soil conditions. Good conservation must be maintained in the watershed—over-grazing, for example, could cause erosion, and the pond would promptly silt up. Bentonite, a mineral sealer, has been used to stop pond and ditch seepage in ponds located close enough to a source of the mineral to keep shipping charges down. Salt has been used successfully on several leaky ponds to make them hold water. Pond liners have been used mostly on an experimental basis, but butyl rubber has been used in ditches to prevent leakage and give cleaner water. Layers of clay over exposed sand rocks and gravel strata made them water-tight. Trials of oils spread on water surfaces of ponds to prevent evaporation were not very advantageous, because the wind blew the oil to the pond's edge.

Livestock stocking ratios: Probably more ranges were damaged by disregard of stocking ratios than any other single factor. Ranchers were hesitant to cut back herds, hoping the drouth would end. But it continued and soon the overstocked ranges were almost bare of grasses which had very little opportunity to come back against hungry herds of cattle. Sell-offs at financial losses were finally forced on many ranchers because pastures would no longer carry the livestock and it was impractical to buy expensive feeds. The correct ratio of livestock to acreage varied according to condition of the ranges. Some of the best ranchers near the end of the drouth were increasing substantially the acreage per cow. Also they were rotating pastures and giving grass a rest period to catch up in growth.

Cover on ranges: It was demonstrated many times that good cover on ranges slows run-off, cuts evaporation, keeps soil temperatures down, reduces erosion, and allows more water to soak into the ground. A study at Brownwood revealed 27 inches of water on a good stand of grass were distributed as follows: 2 inches run-off, 9 inches evaporation, and 16 inches soaked into the ground for use in the production of more good grass. However, 27 inches on ground without good cover were distributed in this manner: 8 inches run-off, 12½ inches evaporation, and 6½ inches into the ground. In other words, about 60 per cent of the moisture was being used in the area of good cover, but only 24 per cent was used in the area of poor cover making for even poorer cover. Texas ranchers were encouraged to develop the native grasses, if possible, rather than reseed. Coastal Bermuda, Weeping Lovegrass, Blue Panic, Buffelgrass, and Rhodes are some of the best. Hubam sweetclover is a legume widely used for grazing and alfalfa has long been extremely popular and maintained its popularity through the drouth.

Spreader dams: Small spreader dams were successfully built across creeks and other waste water areas to force run-off onto dry pastures. One of the simplest was a tree thrown in a stream, top pointed upstream. Some ranchers built spreader dams of old wire and posts, brush, and rocks. Range specialist G. O. Hoffman of Texas A & M College believes spreader dams are valuable savers of water and soil. He recommends they be built piecemeal during spare time.

Dozens of other drouth measures proved effective—terracing, deep plowing, chiseling, pitting, weed control, cleaning of fence rows. One experiment conducted during the drouth showed a single tree near a fence row was robbing the soil of enough water and fertility to cost a total of about $9 per year. Weed damage in Texas has never been tallied, but it certainly runs into the millions of dollars per year. One estimate of the total weed damage in the United States is 5 billion a year.

Irrigation

Farmers learned early in the drouth an irrigated crop was likely to greatly outproduce a non-irrigated one. Since Texas has some of the best underground sources of water in America, wells were punched by the thousands.

At latest count there were approximately 7 million acres of Texas farm and ranchland under irrigation, with only 10 of the 254 counties without some type of irrigation system.

R. V. Thurmond, irrigation engineer for Texas A & M College Extension Service, says the switch from dryland to irrigation farming is often the most important step a farmer will make during his career. Therefore it should not be a hasty decision, but one made after all pertinent facts are analyzed.

Generally, there are about four basic steps that should be taken before irrigation is attempted. They are:

(1) *Finding a source of water:* More than 70 per cent of the irrigation in Texas is carried on with underground water. But will it always be so? Harry P. Burleigh, Texas engineer for the U.S. Bureau of Reclamation, recently warned that demands presently being placed on the state's two main underground water formations exceed their capacity to replenish for a sustained period. In the years ahead, he believes, more reliance may have to be put on surface water; rivers, lakes, reservoirs, and creeks.

(2) *Checking the soil:* Wayne D. Griddle, State engineer from Utah, an irrigation State, recently said, "The physical make-up of soils are so different it might take 25 hours to store 3 inches of water in a tight soil, but only 20 or 30 minutes to store the same amount in a permeable soil. Considerable irrigation water is wasted because of lack of understanding of variations in soil conditions."

(3) *Selecting the right crops:* Most irrigated acreage in Texas is in either coton (2,200,000 acres) or grain sorghums (2,300,000 acres). However, there are several more crops in which irrigation plays an important role. These are rice, wheat, field corn, alfalfa, oats, orchards, and vegetables; and more pasture is being irrigated than ever.

(4) *Applying the water:* The best

"If you can't lick them, join 'em," is a slogan C. E. Doolin, above, understands. Tired of fighting the water-consuming mesquite, top, he cut the trees, cured them, ground them into a fine flour, and fed them to his Angus herd. Not the best feed, but it pulled him through the drouth.

J. Frank Gray, right, was another farmer who turned a nuisance into a drouth-saver. He contracted for all the sewage water from Lubbock to flood irrigate his land.

The drouth of the future will not hurt us as much as those of the past because of the work in developing such drouth resistant plants as silage and grain sorghums, sesame, and a number of range grasses. Fertilizer, too, was found to be a drouth fighting weapon—the more fertile the soil, the less water plants needed. These Texans, who now have rain again, can teach farmers everywhere the tricks of fighting a drouth.

method of water application depends on topography, soil characteristics, water supply, crops to be grown, and available labor. The *furrow* method is adapted to row crops on level land that permits good distribution of water. *Flooding* is adapted to small grains, alfalfa, pasture, and row crops. *Sprinkling* is adapted to all crops and is particularly useful where leveling is not feasible.

Emergency Measures

C. E. Doolin, Rio Vista Ranch, Big Wells, Texas, found a novel way to counteract drouth. Like Henry Rompel with the prickly pear, Doolin made use of a product most ranchers considered a pest—in this case the lowly mesquite bush.

Doolin became convinced of the feeding possibilities of ground-up mesquite one day when he noticed a group of wild bees were attracted to some he had mixed into the soil as organic material. He made a chemical test, and, sure enough, found there was food value in the stuff.

Although a lot of folks poked fun, feeding mesquite to cattle soon became serious business to Doolin. And after four years of feeding and marketing more than 4000 mesquite-fattened steers, Doolin announced mesquite had become a permanent part of his feeding formula. How did he prepare the mesquite for feeding? Usually there were these steps: (1) *Cutting:* Each day about six tons of mesquite trees were cut. Trunks up to four inches in diameter usually gave the best results. Four years of cutting practically exhausted Doolin's ranch and he was cutting mesquite on the nearby ranches, much to the pleasure of his neighbors. (2) *Curing:* Mesquite limbs were stacked for five days to cure. During this process some of the moisture was lost, but, said Doolin, no food value. The dryness would be corrected later by addition of molasses. (3) *Chipping:* Mesquite limbs were fed into a chipping machine which tore them into small shreds and chips. Doolin's machine chipped about four tons of mesquite in an hour and a half. (4) *Grinding:* Chips were ground into light powdery sawdust type material, which Doolin calls mesquite meal. Nothing larger than 3/16 of an inch can clear the grinding machine. (5) *Mixing:* Doolin developed two formulas for mixing—one a sustenance mix for the main herd, and the other a fattening mix to be fed 90 days before sale. A typical sustenance mix contained 1000 pounds of mesquite meal, 500 pounds of molasses, 200 pounds of grain, and 200 pounds of cottonseed meal. A typical fattening mix contained 1000 pounds of mesquite meal, 1200 pounds of grain, 200 pounds of cottonseed meal, and 700 pounds of molasses.

As Doolin tells it, profits didn't pile up from his mesquite feeding. But he was able, with lower feed costs, to hang on to his herd during a period when many ranchers were selling out at depressed prices. He estimated costs of preparing his mesquite mix at about $5 per ton, and he never had any sickness among the cattle he could trace to mesquite feeding.

C. E. Fisher and P. T. Marion of the Spur Experiment Station studied mesquite feeding and reported mesquite meal: (1) had considerable food value; (2) showed no harmful effects when fed to cattle; (3) was reasonably palatable when freshly cut or mixed with sufficient molasses; and (4) compared favorably with cottonseed hulls and other cheap grades of roughage.

They fattened eight comparable steers, four with mesquite meal and four with cottonseed hulls— each group being given an equal amount of grain, cottonseed meal, and molasses—and determined the steers fed cottonseed hulls gained slightly more during a 140-day feeding period. However, there was a profit of more than $5 each on the mesquite fed steers, and a loss of more than $3 each on the others.

Many Texas dairymen came up with the Herbagere as a means of coping with the drouth. The Herbagere is a machine that grows 8-inch oats in just six days, and without any soil. A 20-cow unit costs about $3,000.

The oat seeds to be placed in the machine are soaked and allowed to swell before they are put in trays where they will grow for six days. Each day, water and a chemical mix is added. By the sixth day, the oats are several inches high and ready to be fed to cattle. The "loaf" which is removed from one of the trays usually weighs about seven or eight times more than the original seed. The chemical nutrients include potassium, calcium, silicon, iron, magnesium, aluminum, copper, and sodium among others.

One dairyman who used the Herbagere reported an increase in milk production of from 11,990 to 14,147 pounds per cow per year. Another said he got more milk from 43 cows with a Herbagere than he used to get with 55 cows.

Sewage Saved the Day

Another farmer who came up with a different and interesting method of battling the drouth was J. Frank Gray of Lubbock. His main worry was not how to get more water, but how to use the flood of water he was already receiving!

And flood is no exaggeration, because more than 8 million gallons reached the

(*Continued on page* 74)

Ponds and reservoirs, right, can be built now, will pay off now and in time of drouth. Spreader dams will also stretch the raindrop. Overstocked ranges, below, prevented grasses from recovering and ended in costly herd liquidations.

NATURE'S BOVINE NOBLEMEN
HANDSOME
TEDDY
MACK
8800 Pounds
Finest Yoke of Mammoth Matched Oxen in the World
KINGS OF THE BOVINE RACE
UNRIVALED FOR POWER AND BEAUTY.
They Hold the World's Draft Record
11,284 lbs. on a Stoneboat.
NOW ON EXHIBITION AT THE FAIR GROUNDS
Admission 10cts.

JIM AVERY'S BIG OXEN

What did Jim Avery feed the world's biggest cattle? Can we guess the secret, which died with him?

ONE OF THE MINOR unsolved mysteries of the livestock world is what Jim Avery fed his cattle. Before antibiotics and hormones and high-protein mixed feeds were even a twinkle in the eye of a scientist, Jim produced the biggest cattle in the world; his prizes were Mack and Teddy, monsters whose weight went 'way beyond the two ton mark. But Jim kept his mouth shut, and took his secret to the grave.

Jim Avery grew up in a neighborhood accustomed to superlatives and big records. His next door neighbor, Will Wells, picked 100 barrels of apples one fall day in 1900, a record that has never yet been beaten.

So Jim thought big, and he knew working cattle. Man and boy he had grown up with them, and had worked them in the lumber camps around Buckland, Massachusetts, where he was born. He was well along in years and making good money in the lumber business when he bought Jim and Joe, three-year-old Holstein steers. He saw at once that he had a pair of unusual animals, and decided to try out a theory of feed and feeding he had been turning over in his mind for a long time. He locked them in his barn and began his secret rituals. Both did well, beyond Jim's expectations in fact, and he was about to unveil them to the public when the near ox, his namesake Jim, up and died.

Jim had his eye on another fine ox, which he bought, named Jerry, and went on with his feeding. When they were bigger than any pair of oxen he had ever seen, he brought them out, weighed and measured them, and invited the world to come and marvel at what he had wrought. This, of course, for a price, for Jim had a Yankee shrewdness with a dollar. They were almost perfect matches—height 17 hands, girth 10 feet, length 15 feet, 11 inches. Both eventually went beyond two tons in weight. Each had a magnificant pair of curving horns, which Jim tipped with shining brass and kept in a high polish, and they had sleek, velvety coats.

Being a canny businessman, Jim took them around the county fair circuits in New England and New York, charging a dime a look, and cleaned up. In an era when a good deal of the work on farms and in the lumber camps was done by oxen, the Avery yoke at once became famous. The press used only superlatives in its accounts. The Boston Sunday Herald, May 30, 1897,

Growing big oxen was a hobby with Jim Avery, but he was a showman, too, and a Yankee. He turned a small fortune by showing them at fairs, and capitalized on his secret feed formula by keeping his animals under cover or locked in his barn. His tricks of showmanship were worthy of a Barnum.

One quiet Sunday afternoon Jim Avery's fertile imagination tied up one of the big Holsteins, a rocking chair, and a bystander in a photograph which adorned the posters he plastered over the countryside. In the background is Jim's "second team."

exclaimed, "Search the farms of the State and visit every agricultural Fair, and you will not find the equal of this yoke of cattle. They are as handsome as they are large. Their black and white skin is clean and sleek and their long graceful horns are as bright as a mirror."

William R. Sessions, Secretary of the Massachusetts Board of Agriculture, said in 1895, "Their monstrous size and symmetry of form, together with the almost exact resemblance in size, form, color, and markings are truly remarkable. They must be seen to be appreciated and I would advise every man, woman, and child who has the opportunity to go and see them."

Joe and Jerry, big and famous as they were, did not satisfy Jim Avery. He thought he could do better. As his famous pair began to age, he kept his practiced eye open for promising young animals and settled on a pair of three year olds, also Holsteins, from the Wells Brothers Stock Farm at Wetherfield, Connecticut. His letter to the owner of the farm was short and to the point. *"If you have not sold the bulls, bring them to my place and I will give you your price, twenty-five dollars."*

A neighbor and contemporary, Dr. R. N. Shaw, a veterinarian who now lives in Shrewbury, Mass., remembers when Jim Avery brought his new pair of Holsteins to Buckland. "He waded them across the Deerfield River rather than go down to Charlemont to the bridge," he recalls. "This team was Jim's dream come true. He named them Mack and Teddy and they eventually became the world's largest oxen. Mack alone weighed 4,700 pounds.

"It was a big day when Jim loaded each one into a horse-drawn lumber wagon and drove four miles into Shelborne Falls where they boarded a train and headed for the fair circuit. The venture proved very profitable, even at the small 10 cent admission, as practically everyone who came to the fair went in to see them. They showed at Madison Square Garden in the show called Country Fair. The management made them unload at 2 a.m. as they had to walk to the Garden and they wanted as few people as possible to see them."

Mack and Teddy were shunted around the fair circuit in a Palace Horse Car which was leased for the season. A crew of three went with them. Francis Avery, Jim's nephew and one of the crew, remembers them today as the biggest eatin' cattle he ever saw. He says, "I never saw cattle that could eat as much as they did. Each one would eat a half bushel of shelled grain at a feeding, and drink six pails of water, besides a pile of hay as high as your head."

Mack and Teddy were broad of back and beam. Three men could walk around comfortably on their backs, and a man in a rocking chair felt perfectly safe in dozing off. It was advertised that a bushel of corn could be emptied on Mack's back, and not a kernel would roll off.

No one knew how much Mack and Teddy could pull, since they never entered a contest. However, the manager of the Brattleboro Fair, looking for a special attraction for the last day, offered Jim Avery $100 if Mack and Teddy pulled a stone boat with an 11,000-pound load six feet. The two animals waited patiently while 11,284 pounds of stone were weighed and stacked on the boat. Then at a word from Jim they lowered their heads, flicked their tails, and walked away with the

(*Continued on page* 97)

The Facts on Pellets

Pellets save storage space, time and money for the livestock feeder. They increase palatability and gains and are the best friend poor roughages ever had

By Charles R. Koch

TO HEAR SOME FARMERS talk a man might easily get the idea the baler is obsolete and ready for the Farmers' Museum. Word has been bruited about that a couple of enterprising operators out in California—that fertile strip of land between the Rockies and the Pacific where they specialize in innovations—have a pellet mill on wheels and are pelleting their hay right in the field. The baler, the bale loader, the hay rack, the dryer and the mow, not to mention a lot of sweat and back aches, have been eliminated by this juggernaut of the meadow; and haymakers from Augusta to San Diego are lining up to place their orders for the first commercial models off the production line.

Trouble is, there are no commercial models available; nor does it look as if there will be any in the immediate future, say the next two or three hay seasons.

Furthermore, the California machine is a real juggernaut in every respect. Kenneth and Jim Stewart, the brothers who built it, estimate they have $35,000 tied up in the rolling plant. Estimates of its weight are around 10 tons. It includes a hammermill, a pellet mill, the power plants to operate these mills, a steam boiler and fuel tanks. Obviously, such a heavy machine can take to the field only on the most perfect of haymaking days. Such days are few in the Midwest.

But this does not mean that pelleted hay and pelleted feeds are an impractical dream. Right now pellets give promise of being the "better mouse trap" and farmers are beating a path to their door—in many instances before the door has been unlocked. Any item that offers all the advantages pellets promise has its future assured.

Four hundred pounds of pellets pour from a scoop which a bale of hay would fill. Not only is the bale of hay compressed, in an unknown way its feed value is increased.

College experiments and farmer experience have proven that by pelleting his hay and grains the producer can: (1) Save storage space; (2) facilitate mechanization and self-feeding; (3) get more feed into his livestock; (4) achieve faster and more economical gains; (5) increase palatability; (6) reduce waste; and with it all (7) use poorer quality hay and grain to achieve results which could be expected only from first class materials when fed in conventional fashion.

Why pelleting achieves such good results from inferior feeds is a moot question. Some suggest it is because the animals can utilize the feed better in this form or can be fooled into eating more of it. Others feel that the pelleting process causes a partial gelatinizing of the starch in the grains or some conversion of starch to glucose. In a recent experiment conducted by the Stanford Research Institute it was observed that the area where steers on a pelleted ration stood while eating was much drier than the similar area in a pen of control steers. The report on the experiment suggested this "may mean the mix-fed steers drank more water than those on pellets in order to facilitate mastication and rumination of the coarser feed ingredients. If this is so, it may be a factor in explaining the increased feed efficiency of the steers receiving pellets."

The recent experiments at Dixon Springs, Illinois, in feeding pelleted rations to cattle and lambs have had nationwide publicity. They seem typical of the advantages to be gained from pelleting. R. J. Webb and G. F. Cmarik, who ran the tests, split 60 steer calves, weighing about 425 pounds, into four lots of 15 each. These were fed for 119 days on a straight roughage ration of timothy-alfalfa hay. The difference in each lot was the form in which it was fed. Lot 1 got baled hay; lot 2, silage and chopped hay (the silage was of poor quality with no preservative added and intake was very low); lot 3, hay pellets; and lot 4, chopped hay. These rations were fed free-choice.

The steers on baled and chopped hay made similar daily gains of 0.63 and 0.62 pounds per day. Those on pellets gained 1.73 pounds per day.

The pellet-fed steers ate 15.69 pounds of feed per day, compared to 10.96 pounds for those on baled hay and 10.70 for those on chopped hay. Translated to dry-matter intake this was 14.29 pounds compared to 9.27 pounds, respectively.

The pellet fed steers needed only 906 pounds of feed per 100 pounds gain. It took the steers on baled hay 1,732 pounds of feed and those on chopped hay 1,722 pounds to make 100 pounds gain. For every ton of feed the pellet fed lot gained 220.7 pounds; the baled hay lot, 115.5 pounds; and the chopped hay lot, 116.2 pounds.

Economy

Assigning a value of $20 per ton to the baled and chopped hay, $30 per ton to the pelleted hay, the feed cost per 100 pounds gain was only $13.59 for the pellets, $17.32 for the baled hay and $17.22 for the chopped hay.

Putting a value of 18 cents a pound on the calves made a ton of hay worth $20.79 baled, $20.92 chopped, $39.73 pelleted.

The poor quality of the silage practically eliminated the performance of the silage fed lot from consideration.

The experimenters noted that "the combination of more rapid gain, better feed conversion, and elimination of wastage gave the pellet-fed calves a big advantage in feed-cost per hundred-weight gain, even when a $10 per ton grinding and pelleting charge was added." The pellets, incidentally, were made by grinding the hay very fine and putting it through a 3/16 inch die in a commercial pellet mill.

In another trial at the Dixon Springs Station steer calves fed pelleted alfalfa free choice gained 1.77 pounds per day compared to 0.18 pounds for calves on long alfalfa hay. Another group which received pelleted alfalfa with a rumen additive made daily gains of 1.82 pounds compared to 0.43 pounds for a lot on a ration which was identical except for the fact that the hay was fed long.

The cost per 100 pounds gain for these

Larger pellets made from coarse hay are satisfactory for dairy cattle. Fine grinding of the pellet components reduces butterfat production.

latter two groups were $13.12 and $27.31, respectively. The pellet fed calves had 25 per cent greater feed intake.

In experiments with fattening yearling steers, pellets again turned in a good performance. Steers on a self-fed pelleted ration made daily gains of 2.75 pounds. Those self-fed the same ration in the form of meal gained 2.58 pounds. The cost of feed per 100 pounds gain was $16.86 for the pellet fed group, $19.29 for the meal fed group.

The results in lamb feeding at Dixon Springs were not as sensational as with cattle. Feed intake and gains were increased by pelleting, but it was noted that "this advantage was not enough to pay the cost of pelleting." However, it was pointed out "the practical aspect of pelleting is the feasibility of using low-quality roughages as part of self-fed lamb-fattening rations."

As will be shown later, more recent on-the-farm experience indicates pelleting can be a very valuable tool for the lamb feeder.

Dairy Cattle

Pellet feeding has not been too successful with dairy cattle. To do an economical job of pelleting with the type of machinery now available, the materials must be ground very fine. This fine grinding of the hay seems to cause certain abnormalities in the rumen digestion—the finely ground hay passes from the rumen too quickly for proper action of the micro-organisms—and the fat content of the milk is reduced.

H. D. Bruhn, professor of agricultural engineering at the University of Wisconsin and one of the leading advocates of hay pelleting, has developed a procedure requiring relatively low power to make pellets 2 to 5 inches in diameter without grinding the hay. These pellets are satisfactory for dairy cows.

And Hogs, Too

Pigs, too, do well on pellets. In a Montana experiment the cost of pelleted feed was 10 cents per hundred more than feed in meal form, but the cost per 100 pounds gain was $1.42 less for pellet-fed pigs and they reached market 12 days earlier than the check lot.

Theory of this kind has proven enticing to farmers the country over. Together with the added advantages pelleted roughages bring through reduced labor requirements, relatively automatic feeding, and greatly reduced storage space requirements (pelleted hay requires only about one-fifth as much space as loose hay), these findings have made pelleting the hottest subject in farming today.

On the Farm

Several days a week the traveler passing the Lloyd Wildman farm just outside Cedarville in central Ohio will be attracted by the hum of diesel engines and a cloud of dust coming from the ventilator atop a long, metal-clad building. The noise and dust mean that Wildman is busy pelleting a complete ration for some of the 3,600 lambs he feeds annually.

This burly artist of modern agriculture is a stickler for details. On occasion, he buys his lambs through one of the big terminal markets—the 1,200 he had on feed this past spring came out of the South St. Paul Yards—but he prefers to go out into the range country personally to select the kind of stuff he wants.

It was on one of these trips he came in contact with the kind of pelleting operations that have been paying off for the big western feeders. "I decided I'd have to have a pellet mill if I was going to stay in the feeding business," he said. "And despite the fact my set-up has cost me a lot of money it has been a solid investment.

"When I was hand feeding my lambs and using long hay, it used to take me 120 days to get the same kind of lambs to market I now move in 60 days with pelleted feed and self feeders.

"Besides this I get by with poor quality hay—a high percentage of timothy. If I had good alfalfa I would cut it with straw. That is one of the big advantages of pelleting. You can get good results with hay and grains of poor quality."

Wildman pellets his complete ration. It consists of nothing but hay, corn, molasses, salt and minerals. He ordinarily starts his lambs on a ration of 70 pounds of hay, 30 pounds of corn and 7 pounds of molasses. As he gets them on full feed he cuts the hay back to 50 pounds and increases the corn to 50 pounds, plus 5 pounds of molasses. He uses no hormones, but supplements each ton of feed with 2 pounds of Aurofac 10 (about 20 grams of aureomycin). Wildman explains that while this is admittedly a rather heavy dose, the antibiotic undergoes deterioration in the pelleting process so the dosage must be stepped up.

The pellets are put into self-feeders and the lambs help themselves to about 4 pounds per head per day. "The way they are going now," Wildman pointed out last spring, "800 pounds of feed will put on 100 pounds of gain. They gain about a half pound a head per day."

He has observed, "If those lambs were given loose hay while they are on a ration of pellets a fellow might say they sure need it, because they would immediately begin to clean it up and come off the pellets for a while. But then, in a day or two they'd go back to the pellets and pay no more attention to the loose hay.

"That's the way it is with loose hay and ground feed, too. They soon get to the

Hay is pelleted in the field by this machine designed by a couple of California farmers. It includes a hammermill, pellet mill, the power plants to operate them, a steam boiler and fuel tanks. Its extreme weight makes it ill-adapted to any but the most perfect field conditions. The picture is from *Farm Management*.

Timothy hay put through the hammermill and pelleted with corn, molasses and an antibiotic does the work of good alfalfa in Lloyd Wildman's lamb feeding program.

point where they neglect the hay and eat only the ground feed. That's another reason why pelleting is so economical. It gets them to eat much more hay than they would otherwise."

He says he has never had a case of "overeating" disease with the pellets though he did have several cases of calcium urine this past winter. Whether this can be blamed on the pellets seems doubtful. What to do about it is still a puzzle to him and to his veterinarian, as it is to a lot of others in the sheep business at this time.

Wildman's line of equipment is typical of the ordinary pelleting set-up. He has a hammermill to grind his hay and grain. This mill is powered with a diesel engine and the material is put through a 5/32 inch screen. Ordinarily the materials would go from the grinder to a mixer-blender, but Wildman substitutes a self-unloading feed cart with a mixing mechanism on it. The mixed feed is then elevated to a hopper above the pellet mill. It drops into the mill, is processed into ⅜ inch pellets—a size Wildman feels is the handiest and the most practical size for all kinds of stock—and the pellets are then elevated to a storage bin.

"To give you an idea of how pellets save storage space," Wildman says, "this bin has a capacity of 280 bushels of shelled corn, just under 8 tons. Yet I get 7½ tons of pellets into it. Those pellets contain 140 bushels of corn, 1,000 pounds of molasses and 90 bales of hay weighing 80 pounds a bale."

The mill used in this operation is one of California Pellet Mill Company's 75 horsepower models with a capacity of about 4 tons per hour working with corn, hay, and molasses and a ⅜ inch die. Wildman's output, however, is geared to the capacity of his hammermill, which is only about 2 tons per hour. He usually pellets about 12 tons a day.

When pellets come from the mill they are hot. Some mills use steam as a lubricant to help the material pass through the die. But even without steam, as in Wildman's set-up, where molasses acts as the lubricant as well as a feed additive, the friction of the pelleting process generates heat and the pellets must be cooled after they come from the mill, particularly if they are to be sacked. If they are left in an uncooled mass they will start to crumble and possibly scorch.

Specially built coolers can be bought to take care of this problem. These run from $1,500 to $3,500 for a vertical type, $3,800

Lloyd Wildman, above, adds an antibiotic preparation to the mixture to be pelleted. All of his grinding and pelleting equipment is housed in the metal-clad building shown left. The diesel engine powers his hammermill ; the pellet mill is in the section farthest right. Farmers enjoy the advantages of custom pelleting at Philomath, Oregon. They store their hay on individually marked pallets in this shed, opposite page, have it processed according to their specifications when needed.

for a horizontal type, though some of the larger commercial horizontal type coolers will run as high as $15,000. Wildman simply uses the fan from his grain dryer to blow air through his storage bin as the pellets are elevated into it from the mill.

This lamb feeder also feeds 700 to 800 hogs a year. He has discovered the value of pellets in this department, too. His pigs hit 220 pounds in five months on a pelleted ration. The ration: 1,000 pounds of corn, 500 pounds of poor quality hay, 200 pounds of barley (rather poor quality weighing only 30 to 35 pounds to the bushel), 100 pounds of molasses, 100 pounds of meat scraps, 100 pounds of bean meal, plus minerals and salt.

Wildman figures his total costs for grinding, mixing, pelleting, and putting the feed in the feeders at $10 per ton.

In Nevada

The Dodge Brothers at Fallon, Nevada add their endorsement to Wildman's enthusiasm for pellets. They feed hogs, lambs and cattle, but have used their pellets mostly with the hogs and lambs. They have a 50 horsepower pellet mill with a capacity of about 3 tons per hour of ⅜ inch pellets.

Carl Dodge says, "We make everything from a straight hay pellet to one having 75 per cent concentrate, 25 per cent hay for weaner pigs. High roughage pellets work fine for producing pigs, but can't meet the Midwest competition in fattening out.

"We sustain dry sows on a ration of 95 per cent good quality hay and 5 per cent meat scraps. The wet sows get an 80 per cent hay ration and we feed a concentrate creep feed to the nursing pigs.

"Last winter we fed out 8,500 lambs on a 75 per cent hay, 25 per cent barley plus aureomycin ration. Our average daily gain was about 0.4 pounds on 4½ pounds of feed charged out at $44 per ton. Some of the lambs were not of the best kind. The best doing ones made about 0.7 pound per day.

"The most encouraging thing this season was that we were able to produce a choice grade carcass on all but the tail enders. This is significant since we fed only a 25 per cent concentrate ration."

The Dodges figure their costs are about $5 per ton for grinding, mixing, and pelleting, including plant maintenance but not including amortization. In doing custom work they charge $10 per ton which permits an amortization for plant of about $5 per ton.

Cobs in Pellets

Hybrid seed corn producers are always interested in anything that will help them turn a profit from their by-product, corncobs. It is only natural Ted Funk, one of the seed company Funks, who manages the Funk Farm Trust at Shirley, Illinois, would investigate the possibility of using cobs in a pelleted ration.

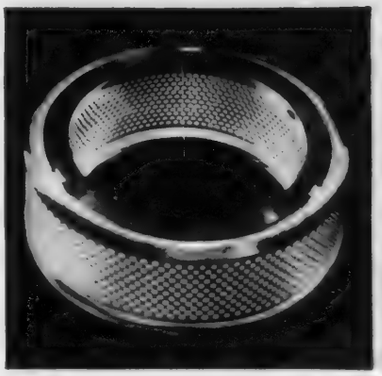
The Funk Farm recently installed a pellet mill, one of the older models which they were able to pick up at a very reasonable figure, just to see what they could do with it and its product. This mill, with a half-inch die and a capacity of 2 tons per hour, was simply put in one corner of a big storage building. A hopper was built overhead to hold the batch of feed to be pelleted after it had been ground and mixed in another location.

"The set-up is crude and inefficient," Ted Funk said last spring, "but we're mighty pleased with the results we are getting from the pellets. Our ration is 500 pounds of ground ear corn to which are added 200 pounds of ground cobs, 200 pounds of alfalfa, 100 pounds of soybean meal and 100 pounds of molasses.

"There is no wasted hay; the cobs are more palatable; we reduce our waste and get away from the powdery meal; we can profitably utilize poorer quality hay and we get more feed into our cattle.

"While we haven't been pelleting long enough to have collected reliable figures on comparative gains and costs, we feel confident we have a good thing here and

(*Continued on page* 79)



What is a Pellet Mill?

Essentially a pellet mill is like an oversized meat grinder. But unlike a meat grinder, its function is to compress pre-ground material into compact packages of more or less uniform size.

The first pellet mill, which was developed in England in the early 1920's, was of the screw, or auger type. A screw forced the material through a die, exactly as in the old meat grinder.

A gear type mill, in which the material was forced down between gears, was developed in Germany but its production was limited by cost and because there was no way of compensating for the wear on the gears.

The ring and roller type of mill is the one now most commonly used. The die in this mill is a big ring perforated with numerous holes like the one shown above. This ring revolves in a vertical plane around two stationary rollers which force the material through the holes.

The die, it is obvious, is one of the most important parts of the mill. It must be made of durable materials. The best are made of case hardened nickel alloy steel and the inside of the die holes are polished like mirrors to reduce the friction of the material passing through.

The die holes may be had in a number of varieties and shapes.

Prices on dies made by one of the leading manufacturers run from $212 up; they average from $300 to $400. A worn-out die cannot be reconditioned. It is useless and can only be sold for junk. For this reason the best dies are the cheapest investment.

THE CATTLE CYCLE

By Forest L. Goetsch

IN THE SPRING of 1951, a Midwestern bricklayer, who might be called Urban Plunger, for he certainly was representative of a lot of city farm owners, calmly made plans for establishing a beef cow herd on his Iowa farm. The fact that he had to pay $300 a head for commercial cows didn't upset him much. "You have to put out money to cut into the fat profits cattle are making," he said. Then the roof fell in.

Late summer in 1954, a shrewd Missouri farmer was pleased with a bunch of thin but good quality cows he had bought for $60 per head. His investment is now paying off handsomely.

You may say, "That's the way the ball bounces in the cattle business." Actually, there is a regular pattern to the way the ball bounces and that pattern is the cattle cycle.

Every time there is a sudden movement in cattle prices, someone is sure to mention the cycle. It sounds like some magic control regulating the cattle business without mere humans entering into the picture. Actually, the columns of figures, the charts, and graphs are descriptions of the mass reaction of cattle producers which is the real force that moves the cycle and since the cattle cycle describes cattle numbers only—not prices—there are biological factors which control its rhythm.

Webster says a cycle is "an interval or space of time in which is completed one round of events that recur regularly and in the same sequence." When you look at the up-and-down movement of the U.S. cattle population since 1880, you can see it is composed of intervals which fit this definition.

The length of the cycle varies, but most of the recent ones have been about 12 years from one bottom to the next. Why does this up-and-down movement occur and why does it take so long?

Look at the cycle when cattle numbers have been moving up toward a new peak. Producers have been holding back stock and are approaching the limit of their pasture and range. At this point, the cattle situation becomes charged with danger as far as good prices go. Then comes a drouth or possibly a drop in business activity—anything that makes for a break in cattle prices.

This triggers off the shipment. Producers begin to get rid of surplus steers they have been holding for price rises. They keep back fewer heifers for herd replacements. Slaughter picks up and prices drop.

When this situation occurs in hogs, the total numbers are quickly reduced. This makes for a cycle that might be described as high frequency—the peaks are closer together. The cattle production machine, however, can't be turned off overnight. When cow and heifer numbers are high, the calf crop gets bigger each year.

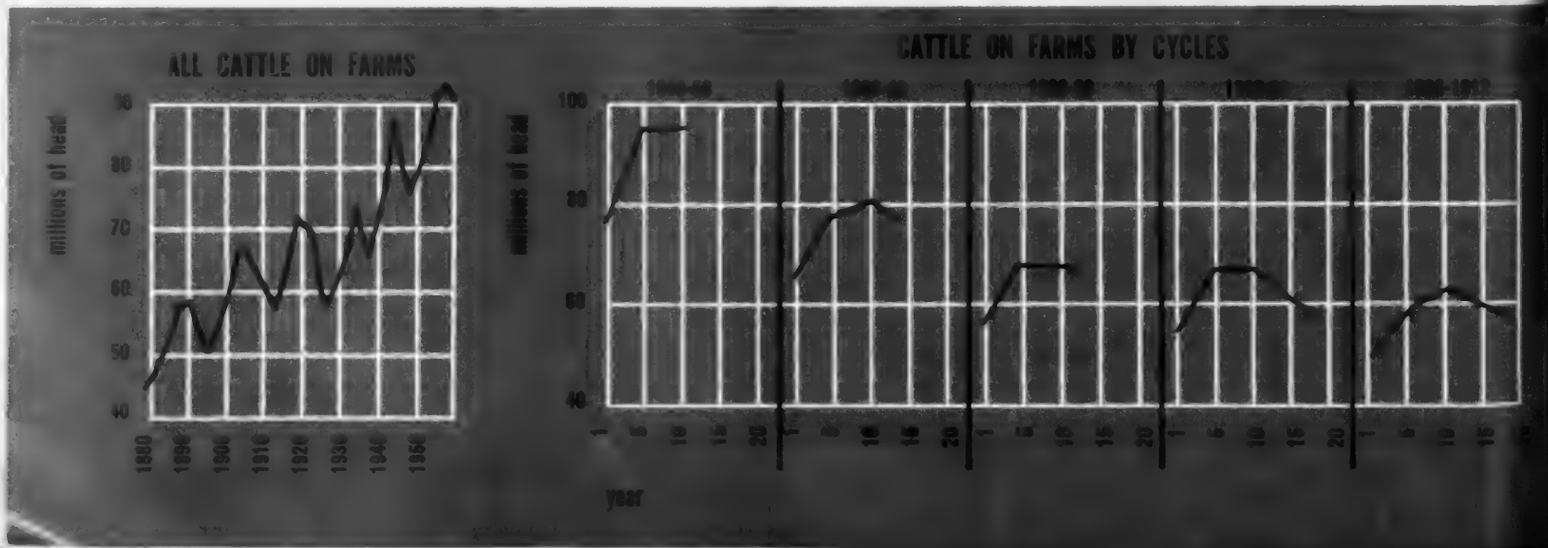
Finally, the profits in cattle production vanish and red ink appears on the books of some ranchers. Here and there a greenhorn drops out and an old hand sells everything but his foundation breeding stock. Then, liquidation of cows and heifers becomes nationwide causing even higher slaughter numbers. Cows and heifers may make up as much as 50 per cent of total slaughter numbers of cattle during this period.

Past cycles show that about 3 or 4 years after the first big break in prices, we get a downturn in cattle numbers. Sometime after it is clear that numbers are finally turning down, the market begins to reflect the fact that fewer cattle are in prospect—that slaughter is going to be declining. Then, cattle prices start to move up. Demand for feeders increases and calves again sell high enough to make a profit for cattle ranchers.

This stage is the frustrating part of the cattle cycle. All the elements are present to make cattle numbers go up. Producers are interested in having more cattle, feeders bid up for replacements. All at once

(*Continued on page* 116)

Cattle such as these will be profitable until 1961, the author predicts. The chart, top, shows fluctuation of cattle numbers and chance for profit for the next 8 years. Bottom charts show two views of the cattle cycle ; a continuous numbers chart, left, and a movement by individual cycles, right.



GRASSHOPPERS

By R. J. McGinnis

MAN HAS FOUGHT grasshoppers ever since he came out of his cave. The Old Testament is constantly preoccupied with the "locust plagues" which periodically reduced the children of Israel to famine. Early settlers in the Prairie states were driven off their farms, not once, but several times, by recurring hordes. Less than two years ago all of North Africa was invaded by migrating hoppers which darkened the sun, ate the grass down to the roots, chewed the bark off peach and apricot trees, and ate the fruit down to the pits. During the 25-year period from 1925 to 1949 the average losses in 23 western states of the USA were over $31,000,000 each year.

During the past 100 years of agricultural history in South Dakota, where grasshoppers have been particularly destructive, 45 have been years in which grasshoppers in localized areas destroyed the bulk of the crops. During 20 of these 45 years grasshoppers have been a serious pest over a large part of the State.

The ancients had few weapons against grasshoppers; they trapped them and ate them, but mostly they depended on prayer and exorcism and waited another year for nature to change the cycle. In modern times we have invented all kinds of poisons to do them in; with these we can control an outbreak in a field or on a farm, or control a general outbreak with some success. We can win these battles, but the total war is a stalemate. They come along next year or the year after, hungry and lively as ever.

The individual, left, is a young grasshopper. When they are a plague, we call them locusts. The African farmer, above, who hopefully plows in a cloud of locusts, may yet harvest a crop—thanks to American chemicals.

Glutton and Cannibal

A grasshopper will eat almost anything that grows, and that includes man. One rare exception is mature sorgo. He's a cannibal, will chew holes in the Monday wash, and eat the grass down to and including the roots. He is especially fond of crops that man plants for his own food and for feed for his livestock. His favorite feeding ground is a range or pasture.

He feeds greedily on his own crippled and dead, but seldom attacks his healthy brothers. J. R. Parker, for many years entomologist with the Agricultural Research Service, tells of watching a group of hoppers feasting on their own dead, crushed by cars on a highway. "Once I stopped to watch such a gathering," he says, "and saw something unusual. The big hoppers were shoving and pushing each other around to get at the carcasses. One little fellow got kicked away every time he attempted to get at the feast. Finally he got so frustrated and angry he lost all restraint and went completely berserk; he jumped astride a big hopper, clasped it with his middle legs, and rode it around like a bucking bronco, all the time chewing away at the head of his victim. When he reached the brain it stopped struggling and was quickly devoured by its attacker and the others that moved in to share the kill."

It would be unwise for a man to take a nap in a field infested with grasshoppers. While they seldom attack anything that moves, they will chew voraciously on an animal or man in repose, and they eat all kinds of carrion.

Damage to crops in the semi-arid portions of our western states where the bulk of our wheat, barley, and flax are grown is enormous each year. During an outbreak, the damage may be total. In other parts of the country there is some damage each year. Even a light population on a Midwest pasture does great damage, more insiduous because it is scarcely noticed in the overall condition of the grass. This is especially true on range pastures. Even a light infestation on a range, 6 or 7 hoppers to the square yard, will eat as much as a cow on 10 acres. If the grass is sparse the damage may reduce it to the point where cattle can no longer subsist on it. During an outbreak, when there are as many as 30 to 60 hoppers to the square yard, all the grass may be destroyed.

During hot, dry weather, the hoppers eat the most. They eat the grass down to the crowns, preventing growth for several years, denude the soil of cover and leave it open to erosion. Some of our worst soil

blowing followed grasshopper outbreaks.

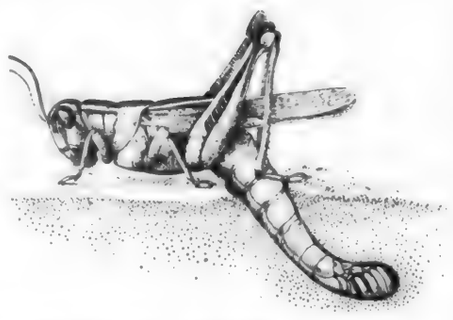
By feeding on the stems of wheat, flax, and cotton they cause the heads and bolls to fall to the ground; by feeding on the silk of corn they prevent pollination and the filling of the ears. This is strategic destruction, and a relatively few hoppers can cause heavy damage to a crop.

In addition to the actual eating of a crop, they cause other damage. They cut binder and baling twine, eat holes in the family wash, get inside the house and chew on the draperies and carpets. In army camps they eat holes in tents and parachutes; they pollute water by getting into cisterns and reservoirs. They plaster windshields, clog up radiators, and have even stalled locomotives on tracks made slippery by their crushed bodies.

Hoppers' Family Life

There are some 200 species and sub-species of grasshoppers, but the species which do the heavy damage have fairly similar habits of reproduction and growth. There is a single generation for most species each year, the old hoppers dying off as cold weather comes on and the next generation wintering through as eggs. Eggs are laid in the summer and autumn and hatch in April, May and June.

During the breeding and egg laying season the hoppers have a high time. The females, by some sort of psychic understanding, choose a certain type of egg laying area. This may be a few square feet or a whole field. The males gather nearby in a confined area and the females visit them, and not to dance the polka. The males usually outnumber the females 10 to 1, which stimulates a feverish activity. One mating fertilizes several batches of eggs. The females shuttle back and forth between their feeding places and the breeding grounds. When they are ready to deposit their eggs they fly to the egg laying grounds.



Eggs are laid in a hole pressed into the ground by the ovipositor. Egg pods contain up to 75 eggs; a female hopper may deposit 21 pods in a season.

Nature has given the female hopper a handy and efficient device for depositing and protecting her eggs. At the end of her abdomen is the ovipositor or "egg depositor". On the ovipositor, are a number of sharp prongs, used for digging. When the female has found a spot to her liking she goes to work. The sharp pronged ovipositor is started into the ground, digging downward, pulling the lengthening abdomen after it. A firm-walled tunnel is made in which the eggs are deposited. As the eggs are laid they are glued together by a secretion, and when the tunnel is full, the female caps it with a final blob of glue, then scratches earth over the spot to conceal it.

This mass of eggs is known as an egg pod and may contain as many as 75 eggs. The number of pods laid by a single female depends on the species, the food supply, and the weather. A migratory hopper may lay as many as 21 pods. Egg colors vary from creamy white to dark brown. Each egg is the size of a kernel of rice.

The embryo develops within the egg, finally breaks the shell, and emerges as a small nymph, fully developed but wingless. There is no larval stage. When hatched the young hopper is wrapped in a cellophane-like envelope and immediately starts to wiggle its way toward the surface. This is usually only a fraction of an inch, but may be several inches if soil has drifted over the egg pod. Once on the surface, the envelope is shed and the little hopper rests a moment to flex his legs and dry out. He is then ready to jump, walk, or eat.

Except for size and lack of wings, the young grasshopper resembles an adult. He advances toward maturity by a repeated process of outgrowing his body covering, splitting it, shedding it, and allowing the new shell-like covering which had been grown within to stretch and harden. This is known as moulting. He may have gone through as many as five suits of clothes before he is fully grown at the end of 40 to 60 days. He now has two pairs of wings.

Incredible numbers of eggs are found in breeding spots. In heavy infestations in favorable seasons there may be as many as 25,000 to the square foot, a billion to the acre over 20 acres of egg beds. Knowing where the egg beds are is highly important in control. These relatively small areas can be poisoned at small expense before the eggs hatch. The young hoppers are killed immediately on hatching, thus nipping an outbreak in the bud. Favored spots are fence rows, highway margins, and wasteland.

Swarms and Migrations

Grasshoppers were the first practitioners of the scorched earth policy. As they migrate, often in tremendous swarms miles wide and high, they leave nothing behind but the bare, hard earth. It is these migrating swarms that do the big, total damage of history, the "plagues" of ancient Egypt and our own Great Plains. Grasshoppers are know as locusts throughout

(*Continued on page* 128)

THE PRINCIPAL INSECTICIDES FOR GRASSHOPPER CONTROL

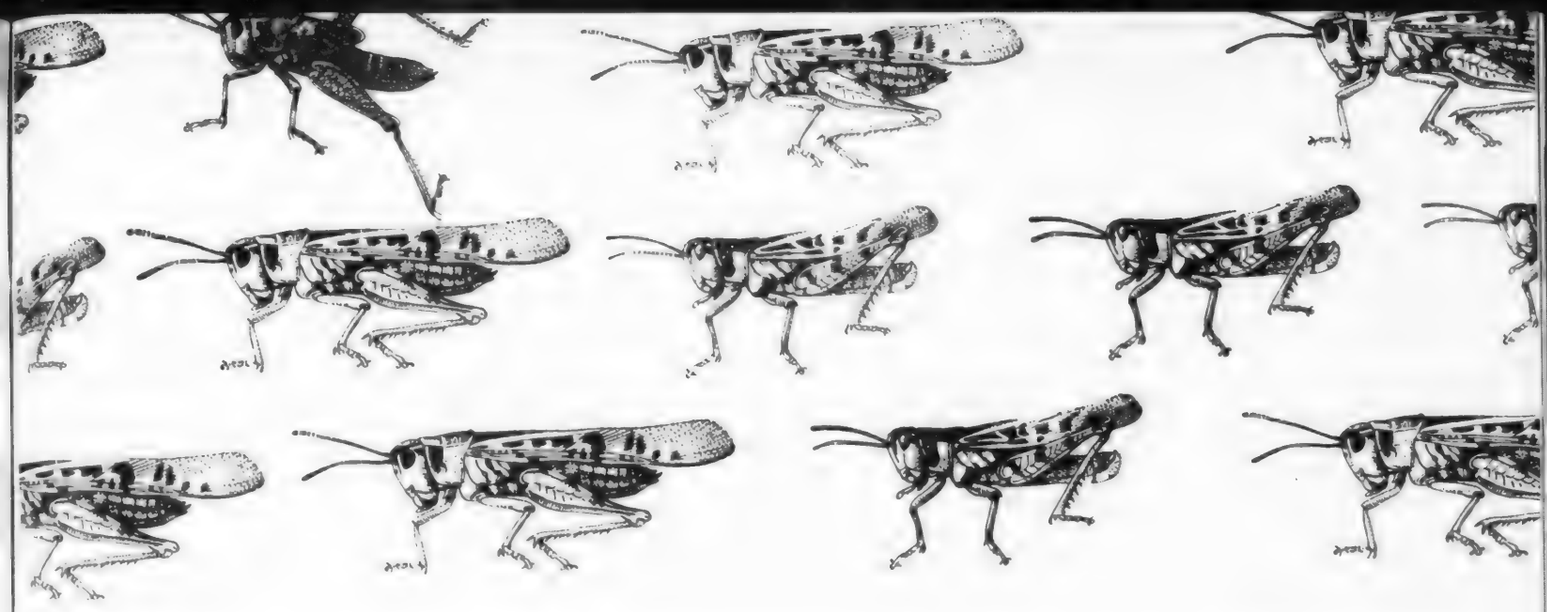
Insecticide	*Amount Per Acre	Restrictions	Crop
Aldrin	2-4 oz.	Number 1 Below	Pasture, Cotton
Heptachlor	2-4 oz.	Number 2 Below	Pasture, Corn, Cotton
Malathion	1 lb.	Number 3 Below	Vegetables
Toxaphene	1-1.5 lbs.	Number 1 Below	Pasture, Corn, Cotton
Chlordane	.5-1 lb.	Number 1 Below	Pasture
Dieldrin	.07-.125 lbs.	Number 1 Below	Cotton
Endrin	.2 to .5 lbs.	Do not hand pick for 5 days after application	Cotton

*** These amounts are for spraying. For dusts of chlordane, heptachlor or toxaphene increase dosage by 50 percent. Dosages will vary with the crop, height of vegetation, age of the grasshoppers, etc. Use higher dosages when vegetation is tall and dense or when grasshoppers are adults. See *Farm Quarterly*, Spring 1958.**

Calibrate sprayer or duster to apply recommended amounts. Concentration in liquid or dust carrier should be based on speed of vehicle, pressure, and nozzle capacity. See *Farm Quarterly*, Spring 1958.

Restrictions:

1. **Do not feed plants treated with aldrin, dieldrin, toxaphene, and chlordane, or ensilage made from treated plants to dairy animals or animals being finished for slaughter.**
2. **Do not feed plants treated with 2-4 oz. of heptachlor per acre for 7 days after application. Do not feed grass (range or pasture) treated with more than 4 oz. of heptachlor per acre to dairy animals or animals being finished for slaughter. Corn receiving late application of heptachlor should not be ensiled.**
3. **For malathion on vegetables the waiting period between application and harvest varies with the crop. NOTE: Consult your County Agent or State Agricultural Experiment Station before using malathion on vegetables or before applying insecticides to crops not listed above for control of grasshoppers.**



GRASSHOPPERS WALKING

From a chapter of "On The Banks of Plum Creek" by Laura Ingalls Wilder, published by Harper and Brothers.

THE SUMMER was very hot. Dry, hot winds blew and there was no rain.

One day when Pa came in to dinner he said, "The grasshoppers are hatching. This hot sun is bringing them out of the eggs and up through the ground like corn popping."

Laura ran out to see. The grass on the knoll was hopping full of tiny green things. Laura caught one in her hands and looked at it. Its wee, small wings and its tiny legs and its little head and even its eyes were the color of the grass. It was so very tiny and so perfect, Laura could hardly believe it would ever be a big, brown, ugly grasshopper.

"They'll be big, fast enough," said Pa. "Eating every growing thing."

Day by day more and more grasshoppers hatched out of the ground. Green grasshoppers of all sizes were swarming everywhere and eating. The wind could not blow loud enough to hide the sound of their jaws nipping, gnawing, chewing.

They ate all the green garden rows. They ate the green potato tops. They ate the grass, and the willow leaves, and the green plum thickets and the small green plums. They ate the whole prairie bare and brown. And they grew.

They grew large and brown and ugly. Their big eyes bulged and their horny legs took them hopping everywhere. Thick over all the ground they were hopping, and Laura and Mary stayed in the house.

There was no rain, and the days went by hotter and hotter, uglier and uglier and filled with the sound of grasshoppers until it seemed more than could be borne.

"Oh, Charles," Ma said one morning, "seems to me I just can't bear one more day of this."

Ma was sick. Her face was white and thin, and she sat down tired as she spoke.

Pa did not answer. For days he had been going out and coming in with a still, tight face. He did not sing or whistle any more. It was worst of all when he did not answer Ma. He walked to the door and stood looking out.

Even Carrie was still. They could feel the heat of the day beginning, and hear the grasshoppers. But the grasshoppers were making a new sound. Laura ran to look out at them, excited, and Pa was excited, too.

"Caroline!" he said. "Here's a strange thing. Come look!"

All across the dooryard the grasshoppers were walking shoulder to shoulder and end to end, so crowded that the ground seemed to be moving. Not a single one hopped. Not one turned its head. As fast as they could go, they were walking west.

Ma stood beside Pa, looking. Mary asked, "Oh, Pa, what does it mean?" and Pa said, "I don't know."

He shaded his eyes and looked far to west and east. "It's the same, as far as the eye can see. The whole ground is crawling, crawling west."

Ma whispered, "Oh, if they would all go away!"

She kept on watching the grasshoppers walking by. There was no space between them and no end to them.

Grasshoppers were walking over Carrie. They came pouring in the eastern window, side by side and end to end, across the window sill and down the wall and over the floor. They went up the legs of the table and the benches and Carrie's high stool. Under the table and benches, and over the table and benches and Carrie, they were walking west.

"Shut the window!" said Ma.

Laura ran on the grasshoppers to shut it. Pa went outdoors and around the house. He came in and said, "Better shut the upstairs windows. Grasshoppers are as thick walking up the east side of the house as they are on the ground, and they are not going around the attic window. They are going right in."

All up the wall and across the roof went the sound of their raspy claws crawling. The house seemed full of them. Ma and Laura swept them up and threw them out the western window. None came in from the west, though the whole western side of the house was covered with grasshoppers that had walked over the roof and were walking down to the ground and going on west with the others.

That whole day long the grasshoppers walked west. All the next day they went on walking west. And all the third day they walked without stopping.

No grasshopper turned out of its way for anything.

They walked steadily over the house. They walked over the stable. They walked over Spot until Pa shut her in the stable. They walked into Plum Creek and drowned, and those behind kept on walking in and drowning until dead grasshoppers choked the creek and filled the water and live grasshoppers walked across on them.

All day the sun beat hot on the house. All day it was full of the crawling sound that went up the wall and over the roof and down. All day grasshoppers' heads with bulging eyes, and grasshoppers' legs clutching, were thick along the bottom edge of the shut windows; all day they tried to walk up the sleek glass and fell back, while thousands more pushed up and tried and fell.

Ma was pale and tight. Pa did not talk and his eyes could not twinkle. Laura

(*Continued on page* 127)

DEERE

Dear Joe:

I had lunch today with Brother Milt who tells me that you have sold old Nellie for dog meat. Frankly, Joe, I am shocked. I loved that old mare. You remember how you and Milt and I, when we were kids visiting you on the farm, used to climb on Nellie and ride all day long. Milt said you got a measly twenty dollars for her. You're a farmer, Joe, and you'll never be anything else. Your grab for the almighty dollar, Joe, puts you right along with the rest of the farmers in the country.

Joe, I've thought about this a long time, and, to me, your selling Nellie triggered it. You've always got your hand out for the taxpayer's money, you're always crying about prices, and you're always peddling your votes to politicians for subsidies and loans and laws that in the end means we people in the city have to prop you up because you don't know how to make a go without us. Your farm is too small to make you a decent living, no matter how much the government hands out to you. You're not a businessman. If I'd run my business like you run your 200 acres I'd go broke. I hope you'll forgive me for being so plain spoken, and I'm sure you know it's nothing personal—except I just can't understand why you sold old Nellie.

Cordially yours,
Cousin Pete

A Farmer Answers His Critics

Dear Pete:

I have your blunt letter about old Nellie and other matters and I'm glad you wrote it. You seem to have covered everything you city slickers know about farmers and farming, and I'm glad to have an opening to tell you a few plain facts. The biggest mistake you make is that a man living on a farm can't have intelligence, or business ability, or sensitivity.

You and I attended the same university. We pray to the same God. Like you, I bleed when I'm scratched; when I hear the tall corn rustle in the quiet of early dawn I am exalted, and when the leaves curl and turn brown in a late summer drouth, I feel like a father whose son has gone. I liked old Nellie, but I've had a lot of Nellies in my time and she was just another head of livestock to me—like the hogs I sold in the spring and the broilers we crated for market yesterday.

Livestock, grain and pasture make the farmer, and too much of one with too little of the other unmake him. You can't hold livestock for sentimental reasons; besides, Nellie was too old to enjoy life with the heaves.

Fifty years ago, Pete, farmers were self-sufficient; they got most of their living right off the land. Do you remember how grandfather lived, right here on this same farm? He had a kitchen garden where he grew most of the food he ate, day by day, the year 'round. He butchered his own meat, raised his own fruit. There was a keg of kraut in the cellar, a smokehouse of hams and bacon, a great bin of potatoes and apples. The shed was full of firewood cut on the place. When he wanted to go to town he hitched up a horse he raised himself and fed with oats and hay from his own fields. He bartered a good deal—grandmother always took care of the bill at the crossroads store with her eggs and chickens. But neither your wife nor my wife would put up with corn shuck mattresses, or yanking a tooth with a pair of tool-box pliers.

It isn't that way any more. When grandfather bought our farm he paid $3,000 for it and it took him twenty years to pay out. Right here now I have $4,000 invested just in a crop dryer. My car cost me as much as grandfather paid for the farm and I've got to renew it every three or four years. If you don't think I'm a businessman, where do you think that money comes from? I have to gross $400 a week or dip into savings.

The horses are gone, too. From one year end to the next they didn't cost grandfather a cent. He raised them here on the farm and fed them his own home-grown feed. The tractor which replaced them cost me $2,000.

Grandfather had at most $500 invested in tools; I have $20,000 in machinery, none of which will move an inch without gasoline. Grandfather paid his hands $15 a month and keep; today you can't get a *good* one—the poor ones cost you a dollar an hour.

We can't raise penicillin here on the farm, nor a radio, nor a refrigerator; we don't have the time for a kitchen garden because it costs more in time to raise it than I get out of the same time handling more livestock.

Grandfather got fifty cents a bushel for his corn. I get twice that, but I pay fifteen times what he did for labor, eight times what he did for machinery, five times what he did for a suit of clothes. Our prices haven't gone up with our costs.

In spring, the farmer plants and if the weather is good, he has a crop. If the weather is good all around the world, the prices drop for what he has to sell. Unlike the manufacturer, he can't cut back production and save money, because his gross is so low—$400 a week is four times the average—that he saves practically nothing by plowing ten acres less or buying one less bag of seed.

A manufacturer with a gross of a million a month can lay off the works and coast along on his back inventory. A farmer has no one to lay off but himself and if he sells his livestock to wait for a price rise he'll have a zero income for anywhere from six months to three years.

As you say, during that time he can always work his kitchen garden.

It appears to the farmer that labor, industry, and business are organized against him. He pays what they ask for machinery, takes what they offer for his crops and livestock. Against the exponents of collective action, he is having a harder and harder time. The union man has an international representative who speaks up for him.—"We want ten paid holidays a year," they say. "We want our birthday off, with pay. We want time and a half for overtime. We want double time for Sunday. We want the same pay for 7½ hours that we got for 8. We want a pension. We want company paid insurance."

Which of these benefits does the farmer receive?

None.

Instead, the government steps in for him. They hold up the price of corn so it sells for $1.20 instead of 90 cents; they hold up the price of milk so the farmer gets 4 cents a pint instead of 3½ cents. They pay the farmer, who has always planted 20 acres of corn, $250 for a 10-acre field if he turns it into grass. Taxpayers pay for this and it comes to about $10 a year each. How much do we taxpayers pay a year in higher prices so that labor gets all the benefits mentioned above? About $300 each.

I'm for these benefits for labor. People with more leisure have more time to think and play and be with their families. But we can't pay out hundreds of dollars per person to labor for higher wages by way of high cost of manufacturers' products, and then complain that we pay out $10 per person to the farmer. We farmers are people, too.

We work without overtime pay, without pensions, hospital care, company paid insurance, without any minimum wage. We work twice your work week, and those of us who own our own farms have the risk every small businessman knows, plus the question mark of the weather.

The farmer doesn't like the word, "subsidy," but he knows he must accept it, as you do, in one way or another. Every gas and electric company has a subsidy because they are guaranteed the right to increase rates until they make 6 per cent profit.

Every air line gets a subsidy in mail contracts and in city planned air fields. Every baseball team gets a subsidy from the

(*Continued on page 78*)

4 CROP IRRIGATION

Pete Gaines began irrigating tobacco. Now, by watering berries, pastures, and silage crops, he spreads his farming risks and cuts the fixed costs on his irrigation equipment

By Chester Charles

"IRRIGATION EQUIPMENT costs money," said Pete Gaines of Carrollton, Kentucky. "It won't do you any good lying around the barn lot. The only way to make it pay is to use it."

From May to October, the irrigation equipment on the Gaines place, Riverview Farms, is shifted from crop to crop in a planned sequence. "We got the irrigation outfit for tobacco," said Gaines. "From there, we branched out, choosing crops that respond well to irrigation. We've added specialties, berries and vegetables we wouldn't attempt without irrigation; we've begun meadow irrigation for our dairy herd and we're irrigating small grains for silage. Our yields are shooting up and our costs for irrigation have dropped way down."

Irrigation was no hard decision for Gaines. From his hillside office window, he can see the broad Ohio River sweeping by his mile of river frontage. Too often he had watched the torrents of water flowing past while his bottomland tobacco yellowed and thirsted in a July scorcher. He had the water, he had the manpower, he had the right kind of soil and, four years ago, he made the investment in equipment that has been paying off ever since. The irrigation equipment bill came to nearly $20,000. "That's a lot of money to put up for just one kind of equipment," Gaines said, "but it's worth it if it insures your investment in everything else, land, machinery, livestock and all.

The Right Start

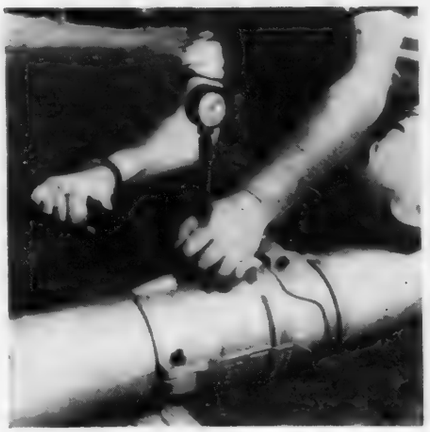
Planning an irrigation system is no job for the amateur. Pete Gaines wanted a dependable outfit. He sought professional help. Competent engineering advice is needed to assure the proper combination of pump, engine, piping and sprinklers to apply the right amount of water at the right rate. "You want to get on all the water the soil will take as fast as it will take it," Pete Gaines said, "but it requires a trained man to figure that out. An irrigation specialist has to consider a lot of things—your soil, your rainfall, your crops, the lay of the land, the source of water and other factors. From the start, I've worked with the engineers who planned our system and some of the answers rubbed off on me."

The pump and its pressure limitations determine the entire arrangement. Irrigation systems range from those of low pressure (25 to 50 pounds per square inch) for small areas, through moderate and intermediate pressure systems, to high pressure (60 to 100 pounds p.s.i.) and giant sprinklers, which operate at more than 80 pounds pressure. Intermediate systems, with sprinklers covering 70 to 130 foot diameters, are most popular. Giant sprinklers, which save on labor costs since they require fewer moves, cover 200 to 400 foot diameters. Their use is restricted to soils with higher absorption rates because of the amount of water they pour on. On tight soils, they will cause erosion and damage crops.

"It takes a big pump and a powerful engine to push the water uphill to a 72 foot elevation through our 6,000 feet of six and four inch pipe and still maintain 80 pounds pressure at the sprinklers," Gaines said. "Such high pressure not only gives wider sprinkler spacing and greater coverage, but it also gives the fog spray we need. With low pressure, the drops aren't broken up much. You can't count on the wind to break up the drops. Drop size is controlled by pressure and nozzle sizes. While it is not much of a problem with us, in heavy soil big drops can cause soil packing and sealing. Soil structure may be injured. On sloping ground, big drops encourage erosion. Tobacco is our big reason for wanting a fog spray. We are growing a leaf crop. The quality of the leaf is the pay-off with tobacco. We can't afford to be careless in irrigating it."

The Right Amount of Water

"There's a rule of thumb about putting one inch of water a week on a crop, including the rain, if any," says Gaines. "It's good for figuring your water requirements if you're dependent on an intermittent stream or pond. Luckily, for the present, my source of water is unlimited. But in applying water, the soil is the first consideration. Ours is a sandy loam. It dries out quickly. Conservation officials have checked the absorption for us. That's the real basis for putting on water, the amount you can apply without run-off. On most of our ground here, the soil will take .4 of an inch an hour without run-off. However, the intake varies some from year to year, even from season to season, with the kind of vegetative cover, if any, an important item.



A pressure gauge in each lateral is checked to guard against falling pressure and dangerous increase in droplet size.

"After the soil intake, you've got to think about the crop, and of course the weather. At the 8 weeks stage, an acre of tobacco uses about .1 of an inch of water a day in weather of low temperature and no wind. The same crop on a hot day with low humidity and good winds uses triple that amount. When the tobacco is big, an inch of water might be needed every 3 days. Now, with strawberries, .15 of an inch is the peak daily demand. Raspberries take a little more, say .2 of an inch.

"Depth of irrigation is important. You want to irrigate the root zone. With to-

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At Riverview Farms, irrigation pipe is transported on a 28-foot, short-turn trailer, opposite page. Gaines, driving a tractor equipped with a two-way radio, keeps in touch with the pumping station. Small fruits and leaf crops, below, are less susceptible to injury if irrigated with a fine spray.

the KING takes a walk

By J. M. Eleazer

King Cotton has moved West. The South, his former domain, revamps its economy

"NOTHING IS SO constant as change." That was painted along the top of the blackboard in my geology class at college. Yes, I said "painted". Chalk was too transient to carry a thing so important. That wise old professor wanted *that* to soak in, if nothing else did.

The sentence is from "The Meditations of Marcus Aurelius", a Roman Emperor who lived during the first century after Christ.

Marcus Aurelius often referred to Cato who was surely a master farmer of the second century B.C. While heavy with superstitions and old remedies, Cato makes pretty up-to-date agricultural reading even for our time. He spoke of the value of good sires and of increased vigor from crossing plants or animals. Many of the ideas I thought new were known to him more than two thousand years ago.

For example, some years ago I read of a method of propagating plants that consisted of bandaging a moist ball of soil around a limb. After the limb puts out roots into the earth ball, you cut it off and plant it. We were not taught that method in college, so surely, I thought, here is something new. Cato described it as being in common use in his time 22 centuries ago!

It has been said, "There's nothing new under the sun." Yet, "There is nothing so constant as change." Is this a contradiction?

Here in South Carolina our real agricultural history dates back only about 200 years, little time as we reckon the age of states and nations. Yet during that brief history we have seen many crops come and go, crops that were important in their day. Things seem to happen to crops. Economic conditions change, misused soils wear out, insects and diseases come, competing areas spring up, substitutes are found, and so on. Yes, crops have been transient things all through our history.

One of the early crops in this area was indigo. Some of my ancestors lived by it. And here I hardly know if it is a plant or animal, so completely has it gone. The only evidence I've seen of it's having been here is the blue fronts we still occasionally see on humble homes in the low-country. That came about in the time of indigo. After the dye was extracted, the laborers took the dregs to paint the fronts of their houses, window, and door frames a gaudy blue. What for? To keep the evil spirits out! So now, all that remains of a once great crop is this superstition that still lingers among a few of the humble folks whose ancestors toiled with indigo long ago. So, indigo went from our fields when synthetic dyes came.

Indigo was followed by other crops. One was flax which grew into an important crop during our early history. Then a disease got into the soil. You couldn't grow flax on land successively. This called for new ground. So flax left us, went west with the frontier.

Remember, there was no organized agricultural science then. When adversity struck, the individual was not equal to it. So he quit and planted something else.

After flax came rice, the crop that built one of the greatest rural cultures the world has ever seen. In its heyday, this small State counted its production of rice in millions of bushels and grew most of that used by these United States. As rice went, so went the economy of the State. It was about supreme as a money crop.

But it, too, was riding for a fall, as others had done before it. First was the freeing of the slaves, for rice was a slave labor crop. Slaves subdued the jungle and made the rice fields possible. And it was slaves

(*Continued on page* 88)

Man is no longer pitted alone against the work and the weevil of the cotton fields. A helicopter, left, dusts a hundred-acre field in minutes, and the cotton picker, above, replaces hundreds of field hands.

Hand picking cotton, right, is a vanishing art, but the boll weevil, below, is still with us. Here one bores into a boll of cotton he missed in the square stage.

Will a Grain Dryer PAY?

By Frank Barnes

LAST FALL many a Midwest farmer could not believe what he was seeing. The corn picker was greased and ready to go, but the foggy rain was so thick that he could not see from the barn to the corn field. Right then and there a lot of minds were made up that before another corn picking season rolled around there were going to be heating and drying facilities ready and waiting. "I spent the corn-picking season clipping coupons," says one Iowa farmer, "and sending in for information about dryers. At least I did get a lot of studying done. I went through a dozen manufacturers' literature trying to decide just what kind of dryer I was going to buy. I never did get all of my 87 acres picked. In April when I got out to finish up the picking, I held my head up high like it was October. There were plenty more like me in the county."

There are almost as many kinds of dryers as there are types of hybrid seed corn—not quite—but it seems that way when you start studying the folders. And, like the seed corn, most dryers will do a good job when used under the conditions for which they were designed.

The first problem any grain farmer has is to fit the drying set-up to his own particular farming operation. When this is done he gets the best performance and best chance to increase his profit. Consider these points: the amount of grain you have to handle; the rate with which you have to handle it; the length of time involved in the use or sale of the grain. Then fit each manufacturer's performance figures to your own set-up. You'll find his figures are accurate for the average grain and weather conditions. Sure, if you have trashy corn you can't put as much in the dryer. If the corn is up around 30 per cent moisture it is going to take more heat. If the weather is cold or the humidity is high you will use more fuel.

You will be able to draw the line around the type of drying you want to do, and perhaps narrow your selection to one or two different makes of dryers.

The Methods of Drying

Although some dryer salesmen would have you believe there is only one way to dry grain, the USDA defines four different methods. They come under the general headings of: (1) *Natural Air Drying*. This makes use of the winds and the low humidity usually present in fall. (2) *Heated Air Drying,* which requires hot, dry air; this is pushed through cribs, bins, or a special drying machine by fans. In the recirculating versions of these machines the grain is moved past the hot air. (3) *Natural Air Drying with Supplemental Heat,* which uses natural air pushed by fans, but when the humidity rises above a predetermined figure a burner kicks in and puts heat in the airstream. (4) *Aeration,* the process of ventilation of stored grains to keep it in good condition. This is not true drying, but actually a conditioning method.

On the opposite page is a picture of a man drying corn last fall. Edgar Truckenbrod, near Paw Paw, Illinois, put automation to work where it counted. He loaded 750 bushels of high moisture corn into the wet corn bin of his automatic dryer in the morning, then let it run while he disked for wheat.

What's to Gain

Three gains can come from drying. First, the farmer is the boss of the harvest and the grain can be harvested when it has matured. No nutrients are added, no increase in yield can be gained once the grain has reached the ripe stage. Delaying picking paves the way for storm damage and extra shattering from the mechanical operation of the machine. When wheat or oats have ripened at approximately 20 per cent moisture, it will cost about 4 bushels an acre yield for every week combining is delayed. In ear corn and milo the loss is 3 to 4 bushels an acre for the delay of every week after it has ripened, at about 33 per cent moisture. So the grain can be harvested when it is ripe and when the combine, picker, or picker-sheller works best. Then the farmer can get on to the next job.

So why the delay? Well, that brings in point two for drying. A dryer makes it possible to move in any direction. The grain can be marketed, or it can be stored. Many farmers who depend on drying in the field or drying only by natural air in old-fashioned cribs, are caught; they have to make a decision based on the lesser of two evils. If they pick the corn at its peak yield point, they stand a good chance to lose money on high moisture dockage if they sell, and by spoilage and insects if they store. If they take a chance and leave the corn standing, they risk weather delays and storm damage before the corn gets dry enough for picking.

The third point is storage security insurance. Corn that is dropped down to 11 to 12 per cent moisture can be stored with no worries. If it is sealed by the ASC there is little chance of having to pay back some of the loan money because of spoilage. Insect damage and molding spoilage is nearly eliminated.

So, for the farmer who wants to control his timing and is looking for every means of getting his farm into a machine handling set-up, grain drying is an important step. If he wants to make the picker-sheller pay off, the dryer is a necessity.

Heated air drying is a relatively new field for farmers. Many have shied away from it because of such words as "relative humidity," "static pressure," and "BTU's." Yet the smart ones have stepped out and made the dryer manufacturer, the distributor and the dealer do the engineering. It is logical to call for technical help in setting up an irrigation system and it is just as practical to ask for it on a drying operation.

Here are some of the questions we have asked farmers who are using dryers on

George Gebhard does custom work with his stationary upright batch dryer in addition to drying his own 60 acres of corn near Stryker, Ohio.

Sam Chudomelka fires up his portable batch dryer for some custom work on a neighbor's farm near Ames, Nebraska.

Dry corn, ready for storage, shoots out of the spout of the portable dryer on the Leonard Carmichael farm near Rochelle, Illinois.

The remodeled corn crib . . .

. . . and the automatic dryer.

THIS IS WHAT HAPPENS WHEN A FARMER CHANGES TO A PICKER-SHELLER

Raymond Legner who farms near Leland, Illinois, added an automatic corn dryer to his corn crib last fall as part of a complete remodeling of his corn harvesting, storing, and handling facilities. When he changed from ear corn storage to shelled corn he had reinforcing of the floors and the sides of his crib as his number one problem. Shelled corn has not only more weight but three times as much sidewards thrust. The plan below shows how the extra strength was gained with tie rods and reinforcing. The small building on the right hand side of the crib was added to house the dryer, which is connected to the wet corn storage bin with a 6-inch auger. This dumps the corn into the top of the dryer automatically at the start of the drying cycle. When the drying has been completed, the 8-inch auger picks the grain up at the bottom of the dryer and elevates it to the top of the cupola where it is channeled into the storage bins on the sides of the crib.

The storage capacity of the crib has been increased from 6000 bushels to 14,000 bushels by going to shelled corn. The change-over, including the remodeled building covered with aluminum, the dryer, controls and wiring, the augers, and elevator cost a total of $7400.

The plan of the building above with remodeling and reinforcing details indicated.

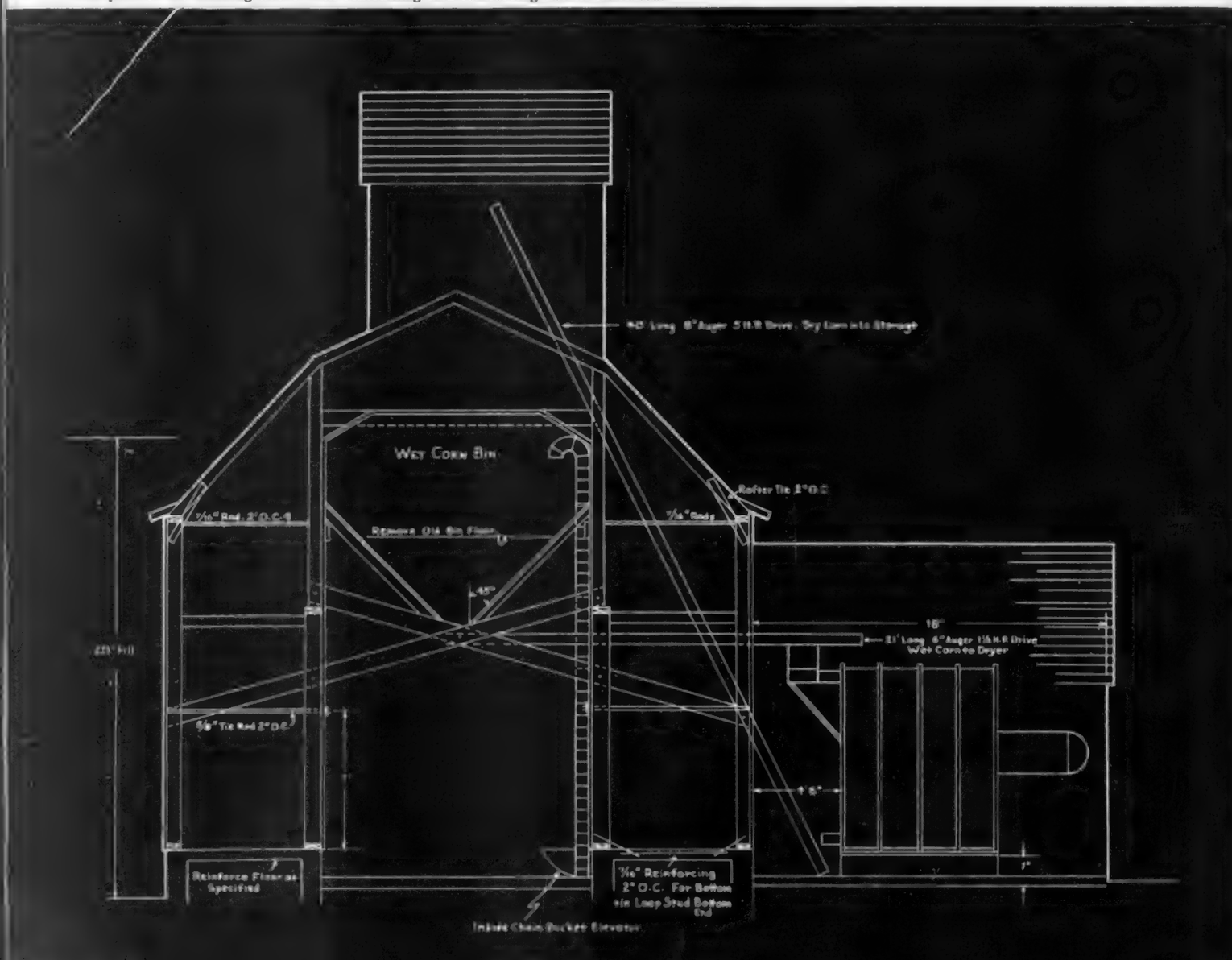
Midwest farms. Their answers give the ingenious ways dryers have been put to work, and the profit possibilities that exist.

Raymond Legner of Route 1, Leland, Illinois, is getting close to complete automation on his corn operation of 150 acres. We asked him:

How did you select your dryer?

Legner: "Well, we studied the literature and we went to Duane Dahnert who is one of the engineer-partners in the Waterman Electric Company in Waterman, Illinois. Duane has specialized in crop handling equipment and he knew the field. I narrowed the field down to two kinds of dryers. I bought an automatic dryer made by American. We have a 700-bushel holding bin for the wet corn before it goes into the processing cycle. The dryer itself runs off a batch of 144 bushels in one cycle, dumps it, and refills itself. It's a permanent, stationery set-up driven by a 5 horsepower motor.

"We did a complete change-over from ear corn to shelled corn storage in our crib. Duane figured that out, too. Shelled corn has about 3 times as much push on the side of the corn bin as ear corn. We end-braced the building with cables, put in extra cross bracing, and gained 8000



bushels storage at just about $1 per gained bushel. We can store 14,000 bushels now. Our complete change-over to automatic grain drying and handling cost $7400. That included the remodeled building, the elevator, the augers, the dryer, wiring and controls—everything but the picker-sheller. We covered the building with embossed aluminum, to maintain a more even temperature. We wanted a dry building and we wanted to be through with painting."

How many people does it take to handle the corn? Did you do it yourself?

Legner: "I hauled the shelled corn in from the field and elevated the shelled corn and took care of the dryer. One man ran the picker-sheller."

Will you give the run-down now? Suppose there is a load of corn ready to unload. Do you start the dryer right away?

Legner: "First we unload the corn. We have to have about 150 bushels in the wet corn bin up above before we start the dryer. When we have the corn up there, we come into the dryer shed, turn on the pilot light, and start the dryer. The dryer immediately starts to fill itself with wet corn. I can leave at that time and when it is full, the fan and the heat will start and it will run the amount of time I have set on the hour meter. At that time, the heat will go off, the fan will stay on, and cool the grain, which is one of the most important points in drying corn."

What temperature do you maintain?

Legner: "The temperature is set at around 210 degrees, the corn stays at about 160 degrees. This is set higher than you would want for seed corn, but I don't worry about it. All of ours is for feed."

How many times would it call for a refill due to shrinkage as you dried?

Legner: "Ordinarily, about 4 to 5 times —about 2 to 3 bushels at a time."

About how long is the drying cycle?

Legner: "The drying cycle for taking 25 per cent moisture corn down to 12 per cent is about an hour and 40 minutes. Then about 20 or 25 minutes for cooling and then 8 minutes to unload. There is a mercury switch that starts the unloading when it gets cool enough."

What is that temperature?

Legner: "The unload cycle works at about 20 degrees above outside temperature."

Do you have the cost figures on last fall's drying?

Legner: "Yes, I put about 2500 bushels through this dryer and it averaged out 3.2 cents a bushel for the cost of propane gas. It costs 13½ cents a gallon here. The electricity for running the dryer motor and the augers cost me roughly .3 of a cent a bushel, making a total of 3.5 cents a bushel. The corn averaged out pretty close to 25 per cent moisture at the start and between 12½ to 13 per cent on the dried corn that came out of the storage bins."

Do you use a moisture tester?

Legner: "Yes. Without a tester you can't dry efficiently. Mine's a Radson."

"It's like money in the bank," says Sam Chudomelka, as he stirs the dry milo on the home farm near Ames, Nebraska. There were 4500 bushels of milo gathering value in his big steel bin as he went into March this year.

Do you do any custom drying?

Legner: "Yes, I do. I dried 17,000 bushels for people around here and for the Leland Elevator. I charged 5 cents a bushel for the first 4 points moisture and ½ cent a point after that."

What do you think drying added to your corn?

Legner: "I would have had to handle it entirely differently without a dryer. Some of it would probably have been marketed before now and we wouldn't have been able to speculate on the market. We have held most of it and sold some for $1.10. We bought outside corn to feed from other people for 80 cents. Our corn is eligible to go under a government loan at $1.11 a bushel.

"Edgar Truckenbrod over near Paw Paw, Illinois, did a job with his automatic dryer that takes the cake. He raises 160 acres himself and he did some custom drying in his set-up which is quite a bit like ours. But he kept the outfit running day and night. Just he and his wife. He ran the picker-sheller and his wife hauled the corn in and elevated it into the wet corn bin. He picked at night while it dried. Some days he would load the wet corn bin,

(*Continued on page* 108)

Walter Bevier had 4000 bushels of corn in these storage bins on his farm near Shelby, Ohio, this spring. He has a total storage capacity of 7000 bushels. He credits the saving of his wet corn crop to the 36-inch fan and the supplemental heat he was able to pump through it last fall after it was in the bin.

'I buy top hogs'

By Frank West

INTRODUCING FRANK WEST—Few will agree with all Frank West says about breeding, feeding and marketing hogs. But he backs his outspoken opinions with solid cash. He buys more hogs and pays higher prices than any other buyer on the Omaha market. He feeds 3,500 hogs a year himself and practices what he preaches. Except for a trick in the Navy during World War II he has been in the livestock business since he was 17. He has bought for the big packers, for small plants and for chain stores. Today he is an independent order buyer, buying principally for discriminating West Coast packers who demand the best meat-type hogs.

THE KIND OF HOGS I buy dress out two per cent better than others on the market. Since I buy upwards of 1,000 head of top hogs a day that means my packer customers profit to the tune of two to three tons of pork more than they would get from hogs of lower quality.

If you can produce that kind of hog, you're in. In times of heavy runs your product will always find a buyer; in light runs they will command the highest premium.

I want a long, meat-type hog with a big ham.

The way to produce that kind boils down to these points:

First, breeding. We like a three-way cross dominated by Yorkshire and Hampshire. Choose the third breed according to your own best judgment after you have studied the pigs from this first cross.

Second, feeding. It takes grain to make a hard hog. No milk after 100 pounds; no grass after 180. Cut the protein in the ration the last 30 days, particularly in feeding the non-meat-type hogs. Too much protein makes too much fat.

But before we get down to details, let me tell you a little something about buying and selling the finished product.

We are an order buying firm. We represent scores of first-class pork packers, most of them on the West Coast. We guarantee 54-hour delivery of live hogs from Omaha to Los Angeles and other points on the Pacific Coast. We'll often buy 3,000 head or more in a day. When a firm builds a following like this there's a reason for it. Here, I think, is the reason for our growth during the 11 years we have been in business on this market.

It used to be you could hardly find a real order buyer in the hog yards here at Omaha. Many of those who called themselves buyers were really dealers. They would have an order for hogs. But they would buy them for themselves, sort them for grade and weight, feed them enough to put some weight in their bellies—it never stuck to their backs—resell them to their customers, reweigh them and ship them. In other words, they made a profit on the gains they put on the hogs, usually got a mark-up in price and then charged a buying commission on top of that. They used to aim for a $100 profit on a double-deck load, approximately 140 hogs.

The extra weight these dealers put on the hogs ruined the yields and their customers didn't get what they thought they were paying for.

Well, Don Diez (who used to work with me buying for Safeway Stores) and I decided we could do a much better job for these packers. We asked the government to set us up a commission and they fixed a charge which today amounts to $32 per double-deck load. That's our gross profit. And that's also why we must have volume.

Everybody said, "You can't buy hogs that way," but we showed them.

We did not reweigh our hogs, and we would not let anybody we bought from reweigh them. And we got them to let us pick out the kind we wanted, to sort them before we bought them. This way our customers got the hogs at their original weights and paid the farmer's price plus only our commission.

We were able to get these hogs to yield 2 per cent better on the West Coast than any competing hogs. They will go 69 to 70 per cent, heads off and leaf lard out. At 20 to 30 cents a pound that 2 per cent represented a lot of money. After getting 4 or 5 loads like that to a few packers we got in the order buying business in a hurry.

The Premium Goes Up

We didn't like it too well when other people began to learn how good a bacon-type hog is. Don't mind me if I talk about bacon-type and meat-type hogs. In my language they both mean the same thing, a long, lean hog with a big ham. Actually, bacon-type is a misnomer. The bacon is one of the relatively less valuable cuts. The loins and the hams are the primal cuts and if a hog has a good ham he'll have a good loin. When they first started breeding this type they put too much emphasis on the length and not enough on the hams and came up with the "meatless wonders." But they have learned.

Anyhow, we found the competition getting rougher when others found out how good the meat-type hog is. The West Coast had always preferred these lean individuals and we used to be able to get them for a ten cent premium. Now we have to pay a premium of 50 cents to a dollar a hundred to get them.

Live hog-fat transported to the West Coast and then rendered out, put in cartons, and sold at 14 cents per pound isn't profitable, either.

I think one of the reasons for the West Coast preference for lean pork has always been the great number of Chinese out there. The Chinese are real good judges of pork. They will give you a good price for a lean hog and they won't give you anything for a fat one. Not a dime. So far as they are concerned it is worthless.

Among the older Chinese the custom has always been to cook the whole carcass and sell cooked pork. If a customer comes in and wants to buy a pound of pork they start cutting on the carcass where they finished for the last customer. They sell pork, not cuts, and they can't have lard in any spot.

To get the kind of hogs our customers want against the competition of the other buyers and packers takes some doing. The Omaha Yard is one of the biggest in the country. To cover it adequately and compete with the big packers I have seven assistants, one for each section of the yards and we have three shacks in various spots in the yards, each with a telephone so we can keep in touch with each other and with other markets.

I handle the west end of the lower level myself. It's dark down there and the floor goes dipsy-doodle which makes it a little tough to really size up a pen of hogs.

The market opens at 9 in the morning by which time most of the offerings for the day have arrived. We get into the yards about an hour before opening and look the situation over. We get an idea of how the quality is running— it varies widely from day to day—and figure out how many top Number One hogs there are of 200 to 220 pounds and 220 to 250 pounds. We get a lot of hogs out here weighing over 240.

Then we have to figure out approximately what the big packers—Swift, Wilson, Armour, Cudahy—are going to pay for their best hogs that day. And we don't

often miss. That's the way we work our bidding. We try to get into those hogs ahead of the packers at approximately the price they are going to pay. A lot of times we buy the tops off the market and the packers end up two hours later buying the sorts out of our hogs at the same price.

The competition, of course, has no intention of letting us do this. But when we walk in there with orders for 3,000 hogs we make a pretty fair dent in a market where there are only 8,000 head of all kinds. They have no idea when we start bidding how many we are going to buy and we don't tell anybody. On the other hand, we have a pretty good idea of how the market is going to be because we know how we are going to affect it.

We mark the individuals we don't want in a pen and bid on the good, meat-type hogs that will yield a high percentage of primal cuts.

When you bid that way you have to pay a little more money. I offered Don Griffith a quarter more for a pen of Yorks with 8 hogs out.

To cover all sections of the yards and meet the competition of the big packers I have a crew of 7 assistant buyers.

We choose our hogs much more cautiously than they do. We try to buy a fancier kind and sometimes have to pay more money for them. The local packer will bid on a pen straight. He'll buy ones, twos and threes all together. We won't. We'll walk into a pen, see maybe 5 or 10 head we don't like and make an offer on the rest of them with those 5 or 10 out.

If you bid with hogs out that way you have to pay a little more money. The seller is not going to sort hogs if it is not to his advantage. He is a pretty smart operator, too, and he is trying to get the most out of those hogs for the farmer he represents. If he sells you the top end he'll have trouble getting a good price out of the rest so he is going to ask more for the ones you want.

Long Hogs for the Long Haul

What do we look for in hogs? Length and hams. And we want them lean. We don't mind big hogs, just so they are not fat. Sometimes we will pay the top of the market for a 240 or 250 pound hog if he is a top hog without fat.

When we look at a hog we estimate his yield, of course; and we have to hit consistently within one half of one per cent if we expect to stay in business very long. Yet yield is not the most important thing. Percentage of primal cuts is what counts. A hog might yield well but be fat and the primal cuts would then run maybe only 40 per cent. So we want individuals which will not only yield well but will have a high percentage of primal cuts. We look first for length, passing up anything that is not at least 30 inches from the aitchbone to the first rib. We want a good ham, not only for its own value but because a good ham insures a good loin. If a hog doesn't have a ham we won't even look at him. And we want a hog that has some back on him. To top it all off, he should be hard. These soft hogs, the kind you can stick your finger in, just won't do. You don't have to even feel them to tell they are soft. You see it when they walk.

Anything with wasty heads, big ears, big jowls, we cut out; and if we see one with his tail set in he goes out, too. That is a sure sign of a fat hog.

There are such things as reputation hogs, too. We frequently have a man's hogs killed separately to see how they cut out. If they do well, we'll want that man's hogs again. If he is a good, honest farmer his hogs will do well year after year. Whenever he brings a load to market we will want first crack at them. Of course, if they are not up to standard we won't buy them; but if they look right, we will be sure to bid on them.

Obviously, the next question is, how does a man go about producing top hogs?

Breeding is the cornerstone. For my money, I like a three-way cross. Yorkshire crossed on Hampshire is a good foundation; then the third breed introduced into the program should be one which will correct any faults noticeable in the pigs which result from the first cross.

To my way of thinking, the Yorkshire is just an all around good hog. And as a buyer and a feeder, I believe a Hampshire hog is probably the most durable, the toughest and the most resistant to disease of any hog in the country. On a commercial basis, where a man buys several different breeds of hogs and mixed breeds and puts them in a lot and feeds them, the hogs that get fat first and the biggest hogs, the ones that are ready to come to market first, will always be Hampshires or Hamp-cross hogs.

On the negative side there are several breeds I would never consider at all. To my way of thinking, the Duroc, the Ohio Improved Chester and the Hereford, which you hardly hear of, just should not be bred any more. And I do not like hybrids except possibly the top 10 per cent. I'll take a Yorkshire-cross hog, or a Landrace-cross, in preference to any hybrid I ever saw.

A Duroc is always fatter on the inside than he looks on the outside. A York is always as lean as he looks and perhaps leaner. So far as the packer is concerned a Duroc is a very poor hog for various other reasons. He is perhaps the hardest hog to get the hair off. He has poor feet and legs. If I ship a load of Durocs to the West Coast I will bet there will be numerous cripples and deads when they arrive. They do not stand up.

The hybrids, I feel, have a long way to go before the packer buyer will like them as well as good crossbreds. In the first place they will yield less. Secondly, like the Durocs, you cannot bet they are as lean as they look.

But the biggest trouble is they are not uniform. I do not care whose hybrids they are, I think I have seen just about all of them, when they are finished and come to market I'll show you three different types of hogs in the pen. Some, for example, will look like spots, some like Hamps, maybe some like Tamworths, but they won't have uniform conformation.

Some farmers would rather buy feeder pigs than raise their own. We prefer, though, to buy from the man who follows a consistent breeding program and raises his own hogs. That way we always know what we are getting.

Feeding

One of the biggest mistakes feeders make is in piling the protein into their hogs the last 30 days or so. Particularly if they have non-meat-type animals they should cut their protein supplement after their hogs hit 180 pounds. A hog which has been getting, for example, 5 pounds of tankage and 6 pounds of soybean oil meal should be cut back to 4 pounds of each after 180

This double-deck of 34,000 pounds of live pork loading at Omaha will be in Portland, Oregon, within 54 hours. That includes four hours at Salt Lake City where the hogs will be fed and slake their thirst on sugar water. Putting brown sugar in the water increases our yields one to one and a half per cent.

pounds. Protein is very essential up to that point but from there on it mainly adds fat. The object is not to see how fast you can get your hogs to market, but how economically you can get them there and still get the top price. If we are going to keep pork in the eye of the housewife, it cannot be fat. The man who aims to sell top hogs had better quit feeding for fat.

Milk fed hogs won't top the market, either. Milk should be cut out after 100 pounds and while alfalfa is all right it is no good for finishing hogs. It takes grain to make a hard hog and from 180 pounds on, that hog should be off grass. When a grass fed hog comes to market you can spot him immediately. You can see it in the manure and you can smell it.

Wheat makes the hardest hogs, with barley probably next. But nobody feeds wheat and very few feed barley so it is up to corn to do the job. The past few years we have had some milo fed hogs at Omaha and we like them.

The best advice a man can follow is to feed normally right up to shipping and make no attempt to stuff his hogs. Anybody who tries stuffing his livestock is just wasting his time. The buyer detects it immediately and deducts enough from the price to cover all the slop he is buying.

Grade and Yield

I am often asked if I don't think a farmer gets a better break selling his hogs on a grade and yield basis. Frankly, I do not. Grade and yield marketing can only be handled through direct points where there is no competitive bidding.

The packer buyer may go to a man's farm, pick out his fancy hogs and haul them 40 or 50 miles to the direct station. Every direct station has an alley maybe 100 to 300 feet long with several gates to slow the progress of those hogs to the scale. The man in charge of the station lets those hogs do a good job of shrinking and sorts them before he weighs them. Then they will probably show a big yield on those weights after the shrink. The farmer takes all the weights from the packer. I wish I could buy hogs like that.

Here is the way I look at direct buying: The farmer may think he is getting a good price in the country, but he doesn't know what he might get if he brought his hogs to Omaha. If all hogs came to the terminal market the prices would be higher for everybody. That may sound contradictory but it is true. There would be more hogs here, but there would be more buyers, too. They would all be competing for good hogs and prices would be much stronger than they are now.

Years ago one of the packers specializing in meat-type hogs was the first to go to the country. They set up direct buying stations all around. Then the other packers had to go out there in self-defense because that packer was buying so cheap. The seller is over a barrel any time there is no competition on the buying side.

Multiple Farrowing

Multiple farrowing is another factor that is causing some important changes in the hog business. Or, it is one of those things which you might say is both a cause and an effect. Years ago the big packer stored his pork on the assumption that in two, three, or maybe as long as six months the market would make a rally and he would get more money for his product. In other words, he would gamble on the market.

But there has been a great influx of small packers in recent years and they do not play this way. They try to figure out what they can get out of a hog when he is cut out and sold as of today's market and they buy that way. This means they need a steady supply.

Multiple farrowing helps to maintain this supply. It levels out the peaks and depressions of the hog movements and helps to get away from the wildly fluctuating price levels. A few years ago we found it very hard in March to buy the kind of hogs we wanted for the West Coast. Now March is a pretty good month for us and we can get pretty desirable carcasses.

The Last Ride

Few, if any, hog raisers are concerned with 1,700-mile hauls like our daily trips from Omaha to the Pacific Coast. Yet our experience does point up some of the steps that are necessary to move a hog from one spot to another with a minimum of damage in transit.

As I have already noted, we guarantee 54-hour delivery. This means we use only the best trucks and the most responsible drivers. If a load is late the buyer has the privilege of deducting 25 cents per hundred from the price. This penalty is met by the trucker.

The trucks we use are double-deck jobs with light aluminum bodies. They are divided into four compartments and have a capacity of about 34,000 pounds, right around 140 hogs. We have used closed, van-type bodies with air conditioning to cool the hogs; but we prefer the slatted body in which the hogs are cooled by natural ventilation. In extremely hot weather we put a 100-pound cake of ice in each of the four compartments and sprinkle the hogs with a hose at service stations along the way.

For bedding we like wood shavings. It is lighter than sand but holds moisture.

The faster a hog moves once he is in

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HARD FACTS ABOUT EASY PAYMENTS

Many purchasers of farm equipment know how to shop for bargains. But they lose all their advantage with expensive financing deals. The smart buyer analyzes his loan, knows how much he is paying for the use of the money, how much for additional services.

THE FINANCIAL EXPERTS may talk about hard money and soft money, but the man who can walk into a bank and borrow at 6 per cent simple interest is a very lucky individual, indeed. Any farmer planning on the installment financing of equipment he is about to purchase would do well to take a little time to analyze exactly what the loan is going to cost. He'll likely hear about 6 per cent or 8 per cent "added on" and there will probably be other charges, too. When he figures it all out he'll find he is paying a lot more than he had anticipated.

Borrowers are likely to assume they are protected by law against usurious interest charges, that in most states the maximum rate is 6, 8, or perhaps 10 per cent. Actually, there is no basis for this complacency. Every state has a legal rate of interest which applies on judgments or on matured obligations, or on loan contracts in which no interest rate has been fixed. On all other loan agreements the lenders have wide latitude as to their rates. Two to three per cent *per month* is a commonly accepted small loan rate in the majority of states.

"Money is a commodity," is the attitude of the finance company, "and just as in the sale of any other commodity the seller must operate on a definite mark-up if he is to stay in business."

The theory has its points, but looking at it from the buyer's side it can be said that also, like most commodities, the price is competitive and like other costs can often be reduced if the borrower does a little shopping. If he is that singular individual who can step up to his banker and get a straight commercial loan, with something more than the equipment he is purchasing for collateral, he'll be able to swing a deal at simple interest.

That means just exactly what your arithmetic book said. If a man borrows $100 for a year at 6 per cent interest, at the end of the term he pays back $106. On a discount basis, the lender lets him have $94 and at the end of the term he repays $100.

But if he has no collateral other than the purchased equipment, he is going to be subject to additional charges for risk, service charges, and other items, and he will probably run afoul of the "add on" feature in which the interest is figured on the loan, added to the principal and a repayment schedule set up which includes payments not only on the principal and interest but interest on the interest as well.

Some of the most efficient operators are most inefficient when it comes to financing their equipment purchases. Some have never questioned the rates they pay; others have questioned, but have never had a good tool with which to analyze the problem. Lawrence D. Rhoades, farm management specialist at the University of Massachusetts, has taken the mathematician's formula known as the constant ratio formula and has adapted it to the analysis of installment rates as follows:

$$\frac{\text{Total of finance charges}}{\text{½ of original loan}} \times \frac{\text{Number of payments}}{\text{Number of years}} \times \frac{1}{\text{Number of payments} + 1} =$$

Actual Annual Rate of Interest

This formula assumes that each installment is made up partly of principal repayment and partly of interest payment and that all the payments are equal.

Here is how it works when applied to a variety of installment plans:

You trade your tractor for a new one and the difference is $960. Your old tractor is the down payment. You sign a 12-month note to a finance company with monthly payments of $89.51. How much will you be paying for the use of the money?

$89.51x12=$1,074.12, the total amount to be paid.
$1,074.12—$960, the principal=$114.12, the finance charges.
Half the original loan is $480.
There are to be 12 payments and the contract runs for 1 year.
Substituting these figures in the formula we get:

$$\frac{114.12}{480.00} \times \frac{12}{1} \times \frac{1}{13} = \frac{1369.44}{6240.00} = 21.95 \text{ per cent.}$$

The 21.95 per cent is the cost of the money to the borrower. Call it interest, if you will. The finance people look upon it as their "yield", noting that it covers not only interest but certain service charges, a payment for risk and other items. Whatever its name, it is a cost to the borrower; to reduce it is good business.

Fortunately, most of the sources of credit open to the farmer are much more liberal than this. If he resorts to any kind of an installment plan, however, he will find that the money he borrows is going to cost him more than the 6 or 8 per cent he will probably think he is paying.

One of the big mail order houses, for example, lists an electric powered concrete mixer at $109 cash. It can be bought on time for $10.50 down and $9 per month after a carrying charge of $10 has been added to the purchase price. Appling the formula to this situation shows that it is costing the purchaser almost 19 per cent for the use of the money and the convenience of this method of payment.

$$\frac{10.00}{49} \times \frac{12}{1} \times \frac{1}{13} = 18.83 \text{ per cent}$$

A common installment plan for the purchase of new farm machinery is the one in the table on this page. Applying this plan to our example of the tractor purchase, an unpaid balance of $960 to be repaid in 12 monthly installments would call for a contract of $1,017.60, with monthly payments of $84.80. Thus the finance charges are $57.60 ($1,017.60—$960) and the annual rate of interest is 11.07 per cent. Notice that this is called a "6 per cent discount table" and beside the interest there is a $2 service charge on every loan. Adding this $2 raises the rate to 11.46 per cent.

An interesting farm installment plan recently introduced is one which can be tailored to a wide variety of payment arrangements either monthly or at certain periods of farm income. Payments can be scheduled up to a maximum of three years and the contract includes life insurance on the borrower and insurance on the equipment financed.

Again, using the example of the purchase with the $960 unpaid balance, this plan, on a 12-month basis, calls for payments of $85.60. The fianance charges are $67.60 and the total charges work out to 13 per cent.

While these charges may seem out of line with the previous plan it must be remembered that they include life insurance on the borrower and insurance on the equipment. If the borrower dies during the term of the contract, the loan is paid off and in some cases there may be a payment of a cash balance to a named beneficiary. If the equipment is damaged or destroyed it will be put back in first class condition or the loan will be paid off with no further expense to the borrower.

As one dealer puts it, "This may be worth a great deal or nothing at all to the borrower, according to circumstances," but it is a helpful feature. It is doubtful that even the very youngest borrower could buy term insurance at the low rates offered under the kind of group policy which covers these loans. The group rates run from about 50 cents to $1 per $100 of coverage per year according to the coverage afforded.

On used equipment and on longer term contracts the rates run higher. With used equipment it would cost $87.20 per month to carry an unpaid balance of $960 for 12 months and the charges would run slightly more than 16½ per cent.

One experienced dealer gives this advice to the purchaser of equipment: "Always approach the transaction as a cash buyer. Get the very best price you can on a cash basis. Then, if it is necessary to finance the deal, make every effort to get a loan at 5 or 6 per cent simple interest or whatever the going rate is in the community. If you finally resort to an installment plan, shop around; get the cheapest one possible."

The examples above have shown how the rates on an identical loan amount can vary from around 11 per cent to almost 22 per cent depending upon the plan used and the services offered with it.

Some installment rate books carry two or three different repayment schedules, the higher ones providing what is called a "reserve" for the dealer. Be sure you get the lowest one.

The point in considering any finance plan is to know what you are buying. Some plans cost more because the risk is

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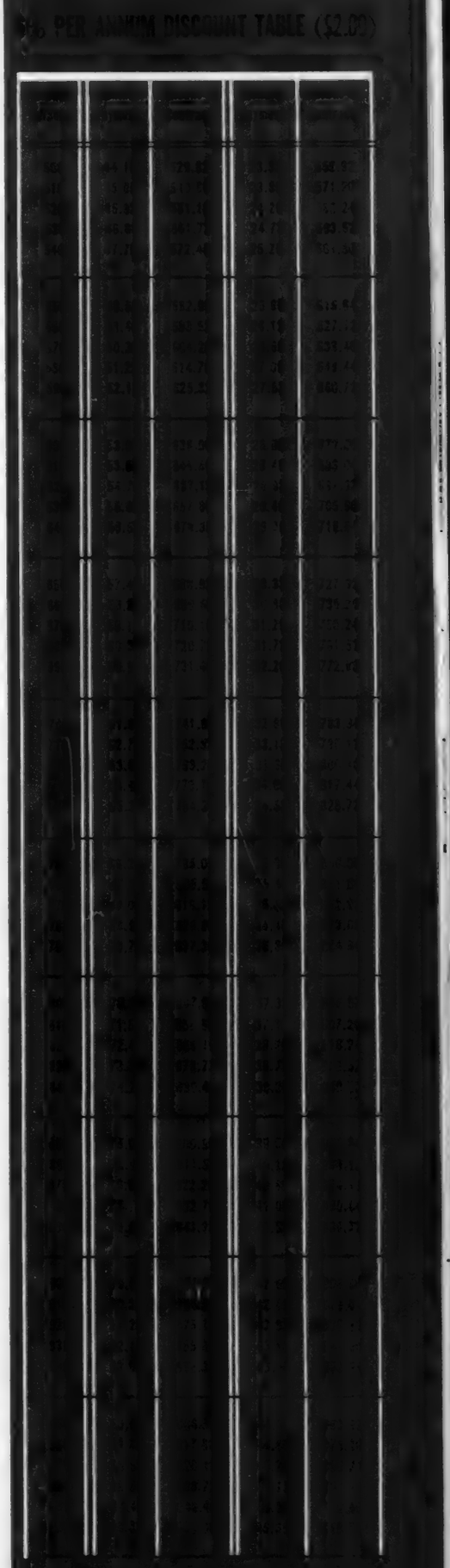

Until now, we've fought a defensive battle against the Hessian fly with resistant varieties, but now the news is:

WHEAT BITES FLY

THEY CALL HIM *destructor—Phytophaga destructor*. But on the farm he is the Hessian fly, bedfellow of the mercenaries of the Revolutionary War, pest that sailed the Atlantic in a mattress.

This camp-follower of a hired army invaded the Americas in 1776, and he has proved a greater destroyer than any army before or since. Perhaps unknowingly, the Hessian troops introduced a new armament—biological warfare. For 150 years the fly has been a most serious pest of wheat. He has determined the day to sow and the variety to plant.

But that was before systemics; newest of the new insecticides. Systemics may in the future become the strong right arm of defenseless plants, and they will certainly find a place in farm use. Though not available yet to the farmer for his wheat, the new poisons have shown they can protect wheat from the fly.

Normal insecticides, applied to the outside of the wheat, have been practically useless against the fly. The adult does not eat, and the larva eats only inside the wheat leaf sheath, protected from the ravages of the field sprayer or duster. Systemics, however, are poisons that flow within the juices of the plant itself, deadly to the insect that consumes them, harmless to the wheat.

With a systemic insecticide, a farmer will be able to plant wheat at the time he chooses for best yield—or as soon as the land is clear of another crop. He can forget the fly. He is not tied to a fly-free date. In addition, he will probably have strong control of soil insects for the early life of the plant.

What are these systemics? The two most tested are Thimet and Di-syston. Both are clear oily liquids in the pure state. Chemically they are thio-phosphates, not very volatile and insoluble in water. They are extremely poisonous. Death to flies; and people. For agricultural use they are absorbed on an inert base, such as carbon, in small quantities. When one of these chemicals is deposited near the root of a plant, it is somehow absorbed, exactly how is not known. The roots in their intake of water are able to assimilate these normally insoluble thio-phosphates.

In the pupal stage the Hessian fly is cradled in straw. In this stage the fly has been blown, carried, or kicked over most of the known world.

Once inside, the chemical is moved around in the sap—reaching the whole plant. In the plant they undergo chemical change, becoming more toxic. Through a series of oxidations they become more potent, but after a short period, a fourth or fifth oxidation makes them harmless to insect or man. This takes between 30 and 60 days in the field, depending on the treating rate and the growing season.

Di-syston, also known as Bayer 19639, is produced by the Chemagro Corporation of New York for Farbenfabriken Bayer of Leverkusen, Germany, who developed the poison. It is at present registered for use on alfalfa and cotton.

Thimet is the product of the American Cyanamid Company of New York and is registered for cotton, alfalfa and sugar beets. These chemicals give excellent early season protection (lasting 6 to 8 weeks) against pests of the crops mentioned. Cotton thrips, aphids and mites are controlled. Spotted alfalfa aphid and mites succumb. Sugar beet leaf hopper—which spreads curly top—dies at first taste of Thimet. How do they kill? As yet no one knows. An educated guess is they kill like other phosphatic insecticides on chewing and sucking insects—by interference with the enzymes of the nervous system.

First Control of the Fly

The man who first showed the efficacy of the systemic insecticide on wheat was Professor Harry E. Brown of the University of Missouri. "Hessian fly," said Brown, "has been one of the last of the insect pests of major importance to resist chemical control completely." It was not until 1948 Brown first demonstrated spray control with huge doses of chlorinated hydrocarbons. The expense was great, but the two treated plots stood out "like green oases," while wheat around suffered a 75 per cent plant kill.

But Brown's results were good only when he sprayed at the time the flies were laying the eggs. This close time schedule would be useless even for the farmer who could afford to spray. The first practical results came two years ago, with the use of Thimet. Earlier trials had shown the Hessian fly reacts to thiophosphates, but the chemicals used had little persistence. Brown "became convinced the answer was a systemic, if only we could find the right one." In 1956 he tried Thimet in greenhouse tests. The chemical was put in the soil alongside the seed. Thus, in March and April, 1956, came the first demonstration of powerful insecticidal action against the Hessian fly. Here was the control, chemically, of this major insect pest.

Field tests confirmed the results. That fall Thimet showed control of the fly was possible when the chemical was mixed with fertilizer and sowed with the seed.

Some of the test crop was cut for forage

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Hessian larvae eating a susceptible wheat, Tenmarq. Each maggot could produce an adult, each female fly can lay 500 eggs.

By David E. Lindstrom

COUNTRY HOSPITAL

The farmers around Hopedale, Illinois, built the fine hospital shown below and found that by working together they were able to do what was claimed to be impossible

An excited new father, left, or an older farmer, opposite page, can take time from farm work to chuckle over the baby or visit a sick friend. Dr. Lawrence Rossi, above, is the founder and head of the hospital.

ON THE MORNING of February 24 of this year at 11:20, Silas Litwiller climbed the ladder to the haymow of his barn. As he stepped from the ladder to the platform, he missed his footing, grabbed frantically for a handhold, missed again, and fell heavily to the floor, 15 feet below.

He felt numbing pain in his legs and back as he tried to get up. He found he couldn't move his feet. After a moment of awful surprise, he began inching along on his elbows to the door to call for help. Fortunately, Mrs. Litwiller was working in the kitchen fixing dinner and heard his call.

Five minutes after Litwiller fell, his wife was talking with Mrs. Donna Springer, a nurse at the Hopedale Hospital, five miles away. "Don't move him," Mrs. Springer said. "Don't let him try to move himself. His back may be broken and any movement might sever the spinal cord. Just keep him warm and we'll be right out."

Thirteen minutes after Litwiller fell, Dr. Lawrence Rossi and the ambulance driver were easing him onto a stretcher. Dr. Rossi ordered a gentle rather than speedy drive back to the hospital, but 40 minutes after his fall, Silas Litwiller was undressed and safely in bed. All of the precautions taken to prevent a severed spinal cord were, in this case, of the utmost importance for X-ray photographs—taken before he was put to bed—showed that Litwiller's back was indeed broken.

Silas Litwiller recovered—mainly because he had the facilities of a modern hospital at his back door. During the long weeks of convalescence, he came to realize he was just one of many farmer accidents treated in this unusual hospital. The boy whose foot was smashed in a feed mill last year is walking normally today because of prompt treatment. One of Litwiller's first visitors was another farmer who broke his back a year ago—he is now back on his farm at work as usual.

The stories of these amazing recoveries can be drawn out. The moral of each is that with the hospital close by, competent treatment quickly administered after the accident helped the body begin its healing process.

And the most surprising thing of all is that there *is* a hospital in Hopedale, Illinois, a town of 500 people. Oddly enough, the people who built Hopedale Hospital are just as surprised as outsiders. "It still seems impossible to me," one of these workers, Silas Nafziger, said. "A lot of people told us we'd never build it. And even some of us on the committee had secret doubts at times. Most of us are prouder of building this hospital than almost anything else."

The Hopedale Hospital began when the Mennonite farmers and their equally religious neighbors realized that the Bible was literally correct when it said, *"Unto everyone that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath."*

Hopedale was a have not area as far as medical care was concerned. It shared with three other communities the service of Dr. Lawrence Rossi. He had offices in Pekin, about 20 miles away, and in Hopedale. Though still in his 30's and built like a professional prize fighter, Dr. Rossi decided that the task of calling on patients all over the country was getting too much for him.

"One day in the autumn of 1953 when I'd traveled for six hours and had seen only three patients, I decided I couldn't keep it up and still do justice to my practice in Pekin," he said.

When news spread around Hopedale that Dr. Rossi, like many of his predecessors, was giving up his office in town, gloom settled over the community. They had been without a doctor before and they dreaded the prospect of isolation from medical care.

"What will it take to keep you here?" Lee Thompson asked Rossi one morning when the doctor stopped in Thompson's grocery store.

"A small hospital where patients could come in for treatment and where I could do a good job of taking care of them," was Rossi's blunt answer.

"And what does it take to make a hospital?" Ray Paine, a farmer who was buying supplies, asked.

"Well, first you have to have a proper building; then you've got to equip it."

"Why don't we start us a hospital?" Rossi doesn't remember now who it was who first said it, but they all got a kick out of the very audacity of the idea.

"There's the old bank building over there," Lee Thompson said, "we might turn that into a hospital."

The three of them walked across the street, looked at the abandoned building; they rejected it as unfit. But in Hopedale such acts don't go unnoticed. Within an hour the news had spread that the three of them were planning to start a bank.

When the true story got around, someone suggested an old residence be converted into a make-shift hospital. Rossi

Agnes Zehr, a farmer's wife, and William Souder, the feed mill operator from nearby Tremont, are typical of the farm people who planned and paid for Hopedale Hospital.

The construction of the hospital and the nurses' home was bossed by Silas Nafziger, right, who is discussing his brood cow herd with Earnest Brennemann, a retired farmer and chairman of the new convalescent home.

Lambing did not prevent Aaron Springer selling bonds nor did other farm work keep his brother, Alan Springer, right, from working on the building of the hospital. John Smith, the trucker, contributed time and trucks to the job.

THESE ARE THE STEPS

A member of the hospital committee said, "The other day I came into the hospital waiting room and found a neighbor kid sitting there. He told me, 'I've come for the Doc to give me some of that whatcha-call-it that we give pigs—you know, antibiotics.' Now we can treat our people at least as well as we do our pigs. Nothing would please us more than to think we had helped ourselves and also set an example for other farming communities to follow. These are the steps we took and others could take:

1. We recognized the need. Either we moved forward or we would slide back to a town without a doctor.

2. We talked to our friends and found even though we all had some doubts, each of us wanted a hospital and were willing to work for it.

3. We secured the cooperation of our churches. In our town the churches are the most important organizations. If we'd been big enough to have other organizations in town we would have tried to get their backing, too.

4. We got the mayor to call a public meeting to discuss the project and find out how folks felt.

5. We prepared for the meeting. Drawings of the proposed hospital were made so we'd have something to show the people. The county medical association had an endorsement ready. The doctors from nearby communities agreed to come and speak for the hospital. The pastors promised to come and tell the folks how they felt.

6. We had a practical plan for financing the hospital. This was most important. Our plan was to issue 4 per cent first mortgage bonds for $75,000 in denominations of $100 and multiples of $100 up to $1,000. Our estimate that the hospital would serve 8,000 people was persuasive in convincing the people that the project would pay. A reliable person, Dr. Rossi, agreed to redeem the bonds personally at the end of 10 years regardless of the success of the hospital.

7. We put the meeting over with a bang.

8. We selected committees that were energetic and representative of the different groups in the area.

9. When we saw it *could* be done, we closed our minds to the nay sayers.

10. Then we pitched in and worked with such enthusiasm, setbacks did not discourage us and we were too busy to quarrel over minor differences.

11. Finally, we were so proud of our finished job, we all wanted to go right on and add to it.

These are the steps we took. We feel we had one advantage other communities can't possibly have—Dr. Rossi. But then, we may be a little prejudiced."

pointed out the cost of remodeling would be almost as great as building a new building; a converted house would never make an adequate hospital; and a new state law was in the making, tightening up license regulations.

As the talk grew, more and more people were heard to say, "I doubt if we could do it—but I'd sure support it myself."

This was very hopeful. Rossi had an architect friend draw a rough sketch and a floor plan of the kind of hospital Hopedale needed. Then he arranged a meeting of the clergy to get their reaction. The two Mennonites, the Presbyterian, Methodist, and Catholic churchmen all felt that it was a project worth pushing.

By this time, the whole town was a-buzz and the Mayor called a meeting.

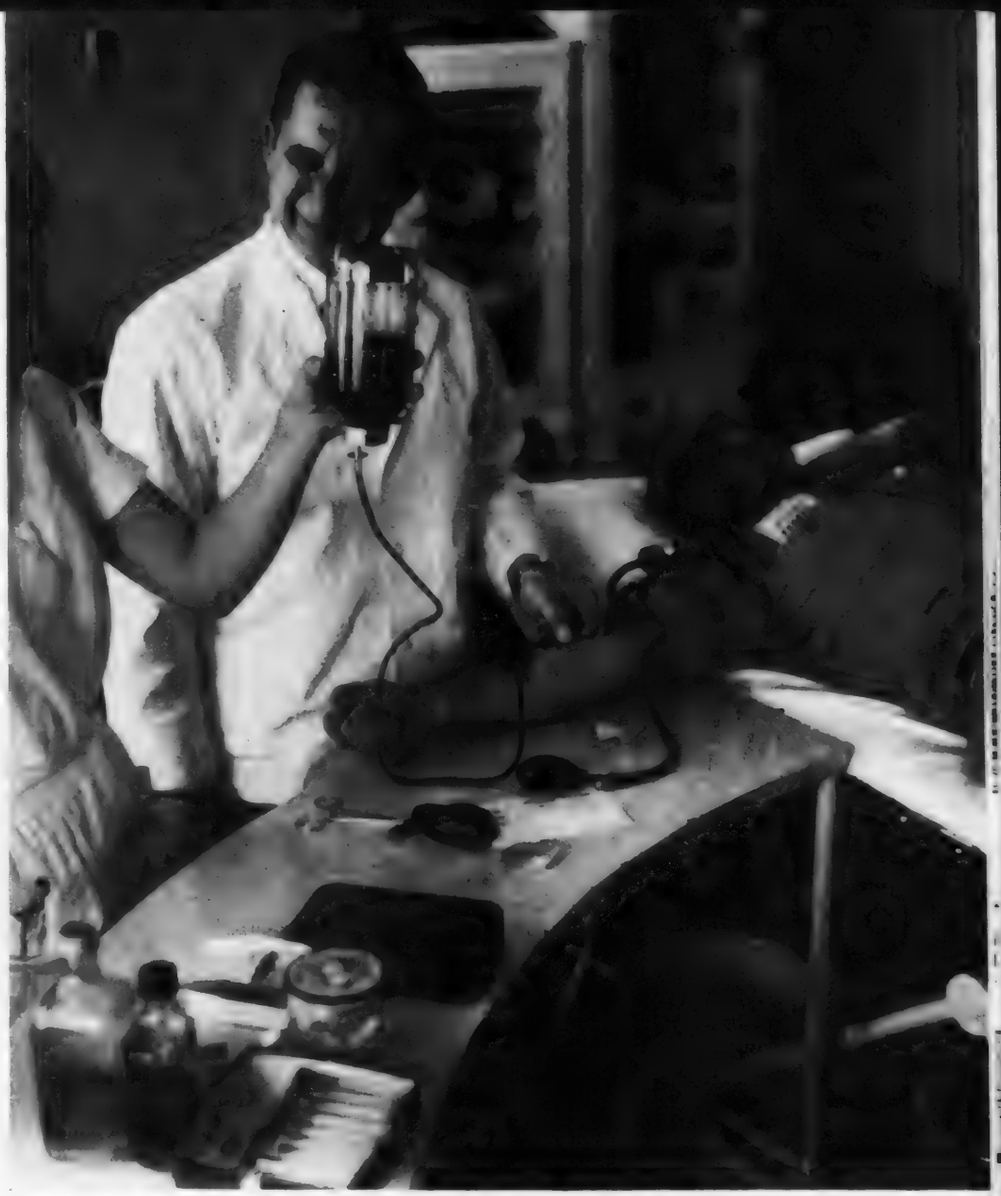
Orville Augsberger, a conservative Mennonite, put his finger on the question in everyone's mind when he met Dr. Rossi on the street and asked, "Just how do you think we could raise money for a hospital"? The doctor explained his proposal for financing the hospital: bonds which would be backed by a first mortgage on the building when it was finished. Dr. Rossi said he would assume the position of ownership and with it the risk of paying back the bond money personally if the hospital was unable to do so. He would strengthen this guarantee by taking out an insurance policy on himself for $75,000 during the period. Dr. Rossi also explained a plan for eventually returning the ownership of the hospital to the community.

Augsberger, who was the last man expected to support the project, bowled Dr. Rossi over by announcing, "I'll head your bond selling committee."

The mass meeting was carefully planned. States Attorney Ben F. Railsback, a local boy, was chosen as moderator. The pastors and the doctors from neighboring towns agreed to speak for the proposal. George Poppo Wearda, the architect, and Louis Dunkelberg, an attorney, were there to answer questions.

On December 5 the big meeting was held. "When I saw that most of the 125 who attended were farmers, I knew we could put it over," Orval Augsberger said. "These men finish a job when they start one. And coming to the meeting, I figured, was starting the job as far as they were concerned."

Dr. Rossi explained the financing system. Seventy-five thousand dollars' worth of first mortgage bonds, bearing four per cent interest, and due in 10 years would be issued. While Dr. Rossi was explaining the technicalities of ownership and responsibility, Augsberger was quietly working his way around the hall tapping shoulders. By the time the meeting was over a campaign committee had been formed: Ray Paine; Marie Brennemann; Mrs. Wilmer Heiser; Mrs. Albert Zehr, whose modern farmhouse is crowded with the antiques she loves; John Smith; Clarence Weihmeir, a prosperous, energetic grain and livestock farmer; Silas Nafziger, the Moravian whose three farms are so neat even the mud of spring looks well groomed; Alan Springer, a corn and hog farmer, and his brother Aaron; and a half dozen other hard-working leaders.



A vacuum bottle sucks blood from the vein of one of the hospital's blood donors; George Margonis, holding the needle, is bacteriologist in charge of the hospital laboratory.

"We divided the area by roads running north and south and then parceled off districts and gradually fanned out to campaign in the towns of Minier and Tremont, which would also benefit by the hospital," Augsberger said.

"We didn't get off to much of a start," Clarence Weihmeir recalls. "After the first day of having everyone tell us how hard up they were, my partner, Aaron Springer, said, 'Clarence, we're making a big mistake here—we shouldn't be building a hospital; we should be building a poor farm'."

Trying to compete with Christmas shopping was more than these amateur bond salesmen had bargained for. Even so, they had sold $35,000 worth of bonds before they decided to call a recess until after New Year's Day.

The campaign was resumed with a full-page ad in the newspapers, a six-page brochure giving the full story with a sketch of the hospital, and an intensified door-to-door canvass. By January 25, 1954, the goal of $75,000 was reached and by the end of the month it was oversubscribed.

There were pessimists and nay sayers along the way. There were the pompous ones who said, "When I'm sick I want to go to Mayo's—no small town hospital for me." And there were the sincere ones who questioned, "Can we build a really good hospital or will it turn into a place where the old and the incurable are sent to die?" There were the practical ones who said, "A 20-bed hospital can't possibly pay out." And the bitter ones, "The unions will never let us build it and we can't afford it unless we do a lot of the work ourselves." The envious ones, "It shouldn't be in Hopedale—our town would be a much better location."

During the whole period, there were the pessimists who said, "You'll never raise the money." "You'll never break ground." "You'll never get the roof on her." "It will just sit there unfurnished." "You'll never open the doors." And finally, after the hospital was in operation, "It'll go

(*Continued on page* 132)

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Yes, we'll give you a complete, free demonstration right on your soil — or if you wish, on your neighbor's land if he has more challenging soil conditions. (Providing you meet requirements set below.)

This summer Seaman-Andwall Corporation is sending demonstration crews over the entire country to show the Motorized Tiller at work; to prove rotary tillage economy and performance.

But we must start now to plan the demonstration tours in efficient sequence. So mail the coupon below — today.

Of course, such demonstrations are costly. We must make it a condition that you get at least five other *qualified* prospective users to watch this demonstration. Final arrangements for demonstrations will be completed after you fill in the attached coupon and return it to Seaman-Andwall.

But act now. Time is short — make sure you're included in our demonstration schedule.

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☐ Yes, I want to watch a demonstration of the Seaman-Andwall Motorized Tiller.
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Individual's Name .....
Name of Farm or Ranch .....
Post Office .....
Phone Number .....
County .....
State .....
Number of Acres .....

PREPARE FOR DROUTH

(*Continued from page* 38)

Gray farm every day, 365 days a year. His water supply was the city of Lubbock sewage system.

Gray made a 10-year lease agreement with Lubbock to take the effluent whether he needs it or not.

What are his results? He never had a shortage of water during the driest season. He estimates he would have received the equivalent of more than 20 inches of rainfall, even if Lubbock had not had a drop of moisture during the growing season.

Dead mesquite means more grass.

This made for good crops. His bale and a half of cotton per acre was more than the average for irrigated farms in the area. Gray also had good yields from wheat, oats, grain sorghums and pasture.

To absorb eight million gallons of water a day, Gray worked out a diversified farm program. His reservoirs would hold only seven million gallons, so some crops had to take water every day. One solution was a crop of weeds, which could be a dumping ground for excess water. When the weeds got six to seven feet high, Gray shredded and plowed them under, adding chemicals to hasten decomposition.

The water is cleared through the Lubbock disposal plant and is therefore quite clean. It is applied by flooding and in furrows, and in order to be able to use this system of irrigation, Gray had to spend considerable money leveling his pastures and rowcrop areas. In all he leveled 1100 acres at $40 an acre. By diversifying his crops he tries not to have an off-season when crops are not being watered—the excess was put on weeds only when not needed for a cash crop.

But this is the exception. There are not many Texas farmers who have, for the last seven years, had water to grow weeds. Quite a few had no weeds to be proud of.

The drouth in the Southwest seems to have been broken, but each year is a new throw of the dice. These farmers aim to use their drouth-resisting knowledge when the weather is dry and prepare their land for a drouth now that they have rain. Being prepared for good years and bad is part of the job of farming.

THE AUTHOR: Brewster Owens is a Texan with nary an oil well nor a ranch. He is, as a matter of fact, an agricultural economist and a dairy farmer. In what spare time he has, he writes for various national magazines.

HARD FACTS ABOUT EASY PAYMENTS

(*Continued from page* 67)

greater. If the rate were not sufficient to cover the added risk, the borrower would be unable to get the credit at all. Then, some plans offer, as has been shown, insurance protection, the convenience of payments tailored to income, either on a monthly basis or keyed to crop harvest, and the convenience of tieing up the whole sale transaction in one package through the services offered directly by the dealer.

These items are all legitimate and helpful to the borrower. They cost money and are not given "for free." The borrower who does not need them has no reason to pay for them and should get his money from another source. The man who does need them should disabuse himself of any impression that he is borrowing at simple interest, make a realistic analysis of what he is paying and see that he gets what he is paying for.

Water AS YOU WANT IT WITH A RELIABLE JOHNSTON PUMP

Sprinkler, or flood, both work equally well with a reliable deep well Johnston.

Johnstons give you more water, too—up to 34% in many cases—plus the kind of trouble-free operation that only comes from a deep well pump built by a company that has specialized in their design and manufacture for almost 50 years.

For a convincing demonstration, call the Johnston dealer nearest you today.

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ARKANSAS
Newport, McDonald-Beaumont Equipment Co.
Newport, Northeast Arkansas Pipe Co.
Stuttgart, O. M. Phillips

CALIFORNIA
Arroyo Grande, Water Well Supply Co.
Artesia, Artesia Pump Co.
Bakersfield, Bakersfield Pump Co.
Chico, Lassen Pump & Motor Works
Chowchilla, Jack Merrill & Hansen, Inc.
El Cajon, W. D. Heil Co.
Fresno, Miller & Bransford
Goleta, Clancy Bros.
Hanford, Hill's Machine Works
Indio, Coachella Valley Pump & Supply
Lancaster, Fred Miller
Leakeford, Geohring Hardware & Supplies
Lompoc, Alexander Bros.
Madera, J. L. Williams
Monterey Park, Hoff Pump Service
North Sacramento, Odell's Pump Service
Ojai, Ojai Pump Co.
Oxnard, Earl A. McMullin
Palm City, Ocean Pump & Equipment Co.
Palo Alto, Robert Garcia Well Drilling
Porterville, O. S. Jackson Pump Service
Ramona, Ray West
Santa Ana, Medalia Bros. Pump & Drilling Co.
Santa Rosa, Buntley Pump Co.
Victorville, Water Service & Equipment Co.
Vista, Western Sprinkler & Pump Co.
Wasco, Carter Machine Shop
Weed Lake, W. P. Hartley Pump Co.
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Yuba City, Schmidt Pump House, Inc.

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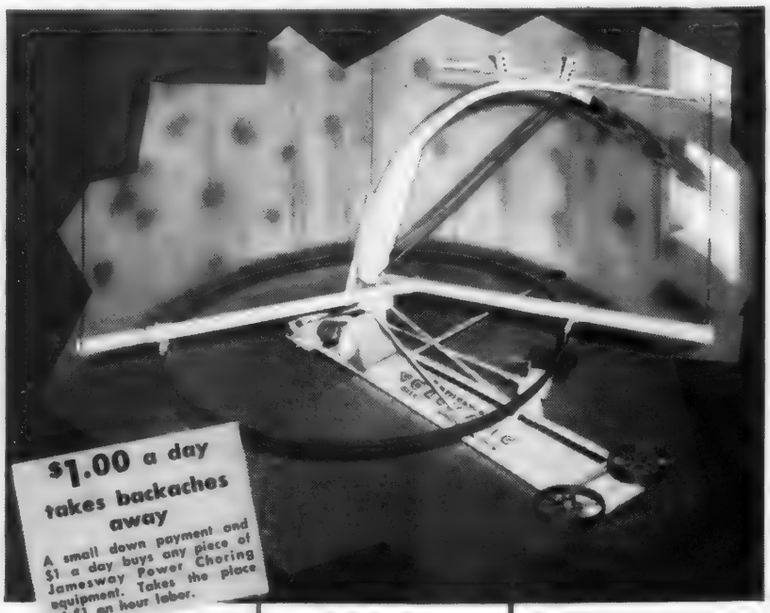
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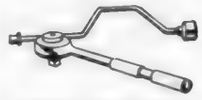
A small down payment and $1 a day buys any piece of Jamesway Power Choring equipment. Takes the place of $1 an hour labor.

3-POINT SUSPENSION

Unloader hangs straight, assures level cut *at all times*. Gives smooth, high-capacity unloading, regardless of silage condition. No digging-in ever. One size, with economical adapters, fits all silos from 12 to 20 feet.

POWER CIRCLE

Positive sprocket and ring-gear drive keeps the auger advancing smoothly, steadily in any silage. One motor powers the entire unit. Here's 100% positive silage delivery every second your unloader operates.



QUICK TAKE-DOWN

Two men with 2 wrenches can knock down, move and reassemble this unloader in less than half a day. Jamesway design does away with tough, time-consuming labor. It's a real convenience if you have more than one silo.

Here's positive Circle-Drive . . . even cutting . . . uniform delivery . . . in the most automatic and economical silo unloader you can buy!

HERE they are, Jamesway's greatest advances yet in silo unloading — positive Circle-Drive, 3-Point Suspension, plus Big Volume and Fast Delivery! This combination of exclusive Jamesway developments gives you a silo unloader unmatched in convenience, capacity and smooth, trouble-free going.

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FRESH-FLUFF ACTION—Jamesway's powerful fan takes fresh-cut silage direct from the auger . . . tumbles, aerates, fluffs it up before dumping it down the chute. *Result*: Every mouthful is thoroughly mixed . . . stems with leaves, frozen with unfrozen portions. Cattle like it better. They waste less, eat more to produce more milk.

Important too — your Jamesway unloader adapts to any size silo, from 12- to 20-ft. diameter. See your Jamesway dealer about this new unloader now. Or write JAMES MFG. CO., c/o your nearest division office. Fort Atkinson, Wis.; Lancaster, Pa.; Los Angeles 63, Calif. Address Dept. FQ-68.

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FIRST IN POWER CHORING®

FOR POULTRY • FOR DAIRY • FOR LIVESTOCK

CONTRACT MILKING

(*Continued from page* 33)

the truth were known, most of the money for financing that deal was made right here in this milking barn."

Membership in most of the associations is at a premium. In the Circleville group, for example, they have a rule that any member selling his shares must first give present members the right to meet any outside offer before he can sell outside the Association. The exception to this strong demand for membership stock is the Beaver Association where membership dropped from a high of 23 to 8. The touchy question of Grade A base seems to have been the chief cause of dissent.

"The trouble with our outfit," one outspoken member of the Beaver group said, "is that we acted too much like people. Selfish and stubborn. When we started there was no base. We sold everything we produced on the Grade A market.

"There was a boom on in dairying here in Beaver," he said, smiling a little grimly. "We saw what a success Minersville had made of their barn and everyone wanted in. We had barbers and bankers and lawyers and government workers buying herds of cows as an investment. They plunked down their money and let the Board of Directors run the show.

"Then came word from the dairy that we were being put on a Grade A base of 4,100 pounds of milk a day and the rest would go as C Grade at about half the price." He winced, remembering the incident, and continued, "Well, the Board of Directors divided up the allotment—then came the howl. Some members had their stock gleaning the grain fields and were milking at home during the period the Board chose as a base period. They wound up with no base at all.

"The guys that had been hurt took it up to the Board to make a protest and then the fun began—the by-laws turned up missing. No one had a copy. The Board claimed they were right and no one could prove different. Now, two-thirds of our members have turned up missing."

The problems of the Beaver Association emphasize the greatest need in this arrangement—a clear understanding by all members of how the organization is to function and a cooperative attitude when decisions must be made.

Though problems are certainly inherent in this cow-milking system, it is spreading. An interesting variation on the theme has been worked out by two neighbors living on the edge of Monroe, Max Yergensen and Junius Christiansen. These men wanted a Grade A parlor, but they also wanted to do their own milking.

Their solution was to form a partnership, build their own building, and run both herds through it. After a year's friendly experience, Yergensen said, "I have about concluded that we ought to go one step further and merge the herds. We

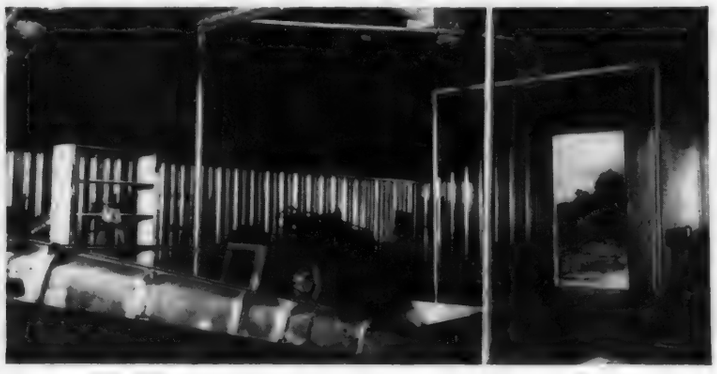
"My Armco Building is ideal for both equipment and grain storage

When I need grain storage space, it's easy to switch over from machinery storage. No expensive modifications either," says North Dakota farmer.

Armco Steel Building does double duty on B. K. Holum farm.

Typical Armco Grain Storage Building—partly filled.

With grain removed, Armco Building serves as machinery storage.



Here's why B. K. Holum of Minot, North Dakota, is enthusiastic about his new Armco Steel Building. When not in use for grain storage, he puts it to work as machinery storage or livestock shelter. Or, by adding strong, steel partitions, he can gain combined use at one time. This is truly an all-purpose building.

Interlocking wall panels have deep, strong, vertical ribs that provide the strength to withstand pressure of small grain piled directly against the walls. No costly sidewall lining is needed. Durable, tight steel panel construction makes Armco Buildings weathertight and rodent proof. They are all steel; won't rot, warp, crack or burn. Practically no maintenance.

Your Armco Dealer can provide whatever size Armco Building you need . . . quickly. He also has a complete erection service, but if you want to put up your Armco Building yourself, instructions are provided to help you do a quick, efficient job. Get complete facts; compare cost and quality before you build *any* farm building. Use the handy coupon.

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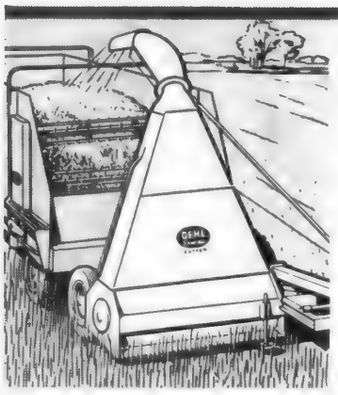

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Rugged-built Gehl Shred-All Cutter for fast, low-cost green-feeding. Also shreds stalks, beet tops, weeds and brush—even windrowed hay and straw. Available as basic unit or with choice of two deflectors for rear or side-loading. Handy tractor-seat control. See the Shred-All Cutter at one of Gehl's 2500 dealers near you.

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What to Look for in an IRRIGATION ENGINE...

This is the Model VR4D 56 hp., Wisconsin 4-Cylinder, V-Type Engine, equipped with heavy-duty clutch.

Continuous pumping, hour after hour, day after day . . . often under high temperature atmospheric conditions . . . calls for everything an engine has got in terms of *Stamina* and *High Torque* load-lugging power.

There are three vitally important things to look for in an irrigation engine and Wisconsin Heavy-Duty Air-Cooled Engines have *all three:*

1. You need an engine of basic High Torque design. This important characteristic provides the *load-holding Lugging Power* that hangs on and carries on under a constant heavy load or sudden shock loads. *High Torque* is engineered into *every* Wisconsin Engine.

2. You need Heavy-Duty design and construction for long-life stamina. All Wisconsin Engines run on tapered roller main bearings (at BOTH ends of the crankshaft). All Wisconsin Engines made for irrigation service are equipped with Stellite Exhaust Valves and Valve Seat Inserts, in combination with positive type Valve Rotators — a feature that adds anywhere from 200% to 500% to valve life.

3. You need an AIR-COOLED engine that will keep slugging away in all kinds of weather, at all temperatures, in any location with an absolute minimum of maintenance service and human attention — further safeguarded by an Automatic High Temp. Safety Switch.

These are some of the reasons why it will pay you to specify "WISCONSIN POWER" for your sprinkler irrigation system . . . backed by more than 2,000 Wisconsin Authorized Service Stations and Distributors. Write for full-line "Spec" Bulletin S-223 and Service Station directory, S-198.

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World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

could have a neutral party place a value on the animals to get over the initial problem of how much each was contributing. Then, each of us would own a half interest in the whole herd. We would buy feed from ourselves or from outside for the whole herd. And we would share the milking chores on a fifty-fifty basis. If one of us wanted to take a vacation the other could handle the job for a couple of weeks and get paid off later. We're fine now, but we may go whole hog."

The possible variations on contract milking arrangements are many, but the objectives are the same. These farmers have reduced their capital investment in buildings and equipment and get far more use from their investment. They have increased their production by better milking methods. They have captured a higher market. They have freed themselves to carry on more diversified farming activities. And they have divorced themselves from the dawn and dusk milking chore. The alimony, they find, is not high.

LETTER TO A CITY MOUSE

(*Continued from page* 53)

city taxpayers in which it plays ball or it moves to another city.

Every TV station gets a subsidy because no other station can infringe on its channel without permission from the FCC. But any farmer who wants to can move next to me and undersell me.

Every magazine and newspaper publisher gets a subsidy on second class postage rates. There's no subsidy on the freight rates I pay. Every working man gets a subsidy from the government who says if he runs out of a job we will pay him unemployment compensation. When the sun turns my land to concrete, I get nothing from anybody.

Who is building all these roads that cut through farms in my state? Private capital? You know where the money comes from—government subsidy. I suspect the contractors like it.

I see no wrong in accepting a crumb of this subsidy as a farmer. Yet the farmers still try to do business on a free enterprise basis and that doesn't make good sense, for there is no free enterprise anymore. This is the basis for most of the misunderstanding about farmers and the basis for the confusion among the farmers themselves.

Free enterprise is what made our country. Today, we seem to be what we are from a combination of free enterprise plus government subsidy. The trouble is that this subsidy is a lopsided thing. Some get a lot; some get a little.

Pete, you own stock in a truck company and I remember you telling me the railroads were through. You said they had borrowed so much money in bonds, which they proceeded to blow like a drunken

sailor, that soon they would have to make a fortune just to pay interest on their bonds.

The railroad presidents who made this mistake and who caused all this inefficiency are mostly dead and gone. But the damage lingers on. I have a newspaper in front of me and the headline is, "ICC Recommends USA Free Railroads of All Taxes."

Yep, a subsidy. And you and I pay it.

Again, Pete, I'm not against it. Maybe we have to subsidize the railroads to keep them going in case of war, and emergency. All I keep saying, Pete, is that when subsidies are dished out, the farmer gets less of them and works harder personally and takes more risks than any other human being in the entire American System.

The farmer's piece of the give-away pie is tagged with an actual dollar price in the farm bill. It is the only subsidy where the taxpayer sees what he pays. That's why it lays itself open to attack as a handout.

The farmer is bewildered by the myth that his subsidy comes only from taxes city folks pay. I pay taxes, too, but less of my taxes comes back to me; the greater part goes to unseen subsidies, to industry and unions.

Today farming is a business and a science. Greater demands are made on the farmer to hold his job. From a simple piece of human mechanism which planted a seed, reaped the grain, and ate it, the farmer found himself called upon to develop new skills. Today he must be a mechanic, a geneticist, a soil chemist, a horiculturist, and above all, a businessman. The successful farmer today is the most versatile operator in our country. Those who do not grow with progress are failing. We lose over 100,000 farmers a year. The traditional small farm is disappearing. The farmer's reluctance to organize, to band together for mutual benefit and protection, is the chief reason for his financial predicament, not as you assume, his lack of technical skill or business acumen.

This is not an apology nor a defense. This is my situation, this is what I am. Even though you are a city mouse and I am a country mouse, we had common grandparents—we're no different at all in character, wants, personality, or needs. You see the tail on the coin; I see its head. But it is all the same coin, and that goes for old Nellie, too.

Sincerely yours,
Cousin Joe

FACTS ON PELLETS

(*Continued from page* 45)

we are going to put in a permanent, efficient set-up."

A lot of farmers impressed with the advantages of pellet feeding will hesitate to lay out the money required to install a complete pelleting outfit. But they will find the kind of custom operation set up by A. E. Alberston at Philomath, Oregon, right up their alley.

Albertson has a substantial sheep-feeding operation. He installed grinding and

THE BEST FLEXIBLE PLASTIC PIPE FOR LOW COST FARM USE

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PLASTIC PIPE AND FITTINGS

Your farm water supply system installed with Streamline Polyethylene Plastic Pipe will have longer life and give more dependable service, even under extreme conditions such as repeated freezing. It has far greater burst strength and higher resistance to creep and stress crack than conventional plastic pipe. Also resists the action of rust, rot, corrosion, bacterial growth, acids and alkalies. Flexible, for easy installation above or below ground by one man . . . lines are readily re-located . . . can be connected to existing systems. For an economical, trouble-free water system be sure to use Streamline Plastic Pipe.

The ideal pipe for deep wells, domestic cold water service, irrigation and land drainage, cleaning and watering stock.

*INTERMEDIATE DENSITY GRADE
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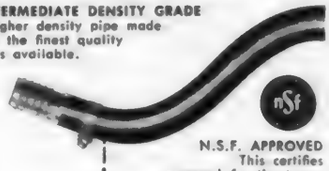

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"FLYING L" RANCH ROOM FIREPLACE

A versatile, rustic all-steel fireplace you can install in less than a day. Requires only 25" x 36" floor space, costs far less than masonry. Ideal in your present or new home, mountain cabin, summer home, mobile home, any informal setting.

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Designed in the manner of grandmother's old-fashioned Topsy stove with obround flat top.

Both styles shipped cartoned with one length of stack, damper installed.

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- Heavy-gauge steel construction
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- Mounted on sturdy steel legs 8" above floor for easy cleaning or wood storage

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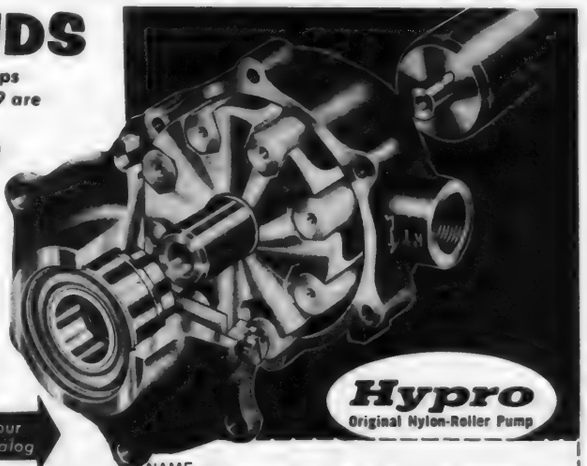
. . . proving the durability of this rugged pump, and the wisdom of demanding a HYPRO for your next sprayer pump.



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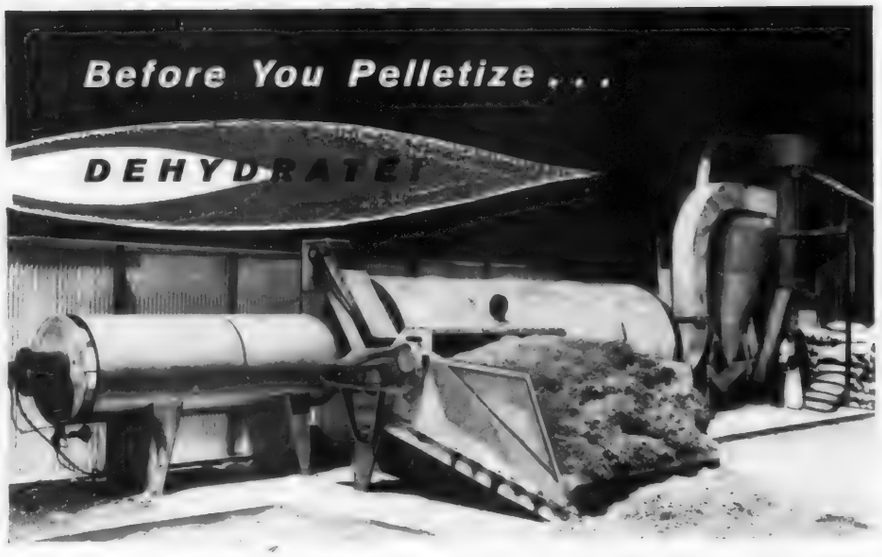

WHEN you spend thousands of dollars on pelleting equipment, it pays to *make sure* you pellet *only* forage rich in nutrients. By dehydrating the crop first with a Heil Dryer, your pellets contain more protein, vitamin A and other necessary health and growth elements.

In addition, dehydrating adds about 10% to the yield per acre. You save all the crop — leaf shattering and weather losses are prevented — and an extra cutting is usually possible.

A flash of hot air from a HEIL Dehydrator preserves alfalfa or other forage . . . fixes quality at the peak of nutritive value . . . puts the crop in best possible condition for pelleting.

If you want pellets with highest feed value at about half the retail cost, ask about the Ardrier Farm and Ranch Dehydrator. Write, wire or call —

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SELF FEEDING PAYS—IN MANY WAYS

BOTH BEEF AND DAIRY CATTLE

CATTLE SELF FEEDER

Designed to:

- ★ HANDLE PELLETS AND SHELLED CORN
- ★ CUT LABOR COSTS 80%
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- ★ FEED BEEF AND DAIRY CATTLE
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Smidley Automatic Hog Feeders are the longest lasting and most nearly waste proof hog feeder on the market today. There are sizes and designs to fit every need — pig creeps, fattening feeders, sow feeders and special designs to fit specialized needs.

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WASHINGTON COURT HOUSE, OHIO

blending equipment and a Wenger pellet mill to process a ration of ground barley, molasses and an antibiotic. This ration he feeds free choice.

To keep his mill in constant use he offers a unique custom pelleting service to his neighbors. He has a large shed in which he stores hay for his customers, thereby setting up a kind of hay bank. These customers bring their own baled hay in for deposit; it is kept on individually labeled pallets. When they need pellets they phone in their order for the tonnage they desire mixed to their own specifications. The pellets are processed and are conveyed to large tanks over the driveway.

When the customer comes in to pick up his pellets, he brings a load of hay with him with which he replenishes his supply in the hay bank and reloads his truck (usually equipped with a self-unloader) with his pellets.

Back in his own feedlot he transfers the pellets to his self-feeders at the rate of anywhere from 1 to 5 tons to the feeder.

This arrangement enables the small operator to cash in on the advantages of a complete pelleted ration without a major outlay in equipment and at the same time it enables the owner of the equipment to keep his plant in constant production.

Field Pelleting—When?

Will field pelleting someday become a general practice with farmers? While he cautions against trying to jump the gun and winding up with a lot of expensive and poorly engineered equipment, Wisconsin's H. D. Bruhn feels definitely that day is coming. The system he envisions is this:

A Midwest farmer might begin to cut his hay around 9 o'clock in the morning on a good haymaking day. He would follow his mower with a conditioner and by 4 that afternoon the hay, under perfect conditions, could be down to 35 per cent moisture. Bruhn says he has never seen material too dry to pellet but that anything over 35 per cent is too wet for the process.

Then the mobile pelleting machine would pick up the hay, compress it into the larger size pellets—2 to 5 inches in diameter—and deposit them into a grain bed instead of a hay rack, thereby increasing the capacity of the transporting wagon four or five times.

Hauled to the barnyard the pellets would be placed in upright bins rather than in the hay mow. A heated-air drying system would be put into operation to bring them down to 18 per cent or less moisture. The heat would be necessary because the density of the pellets would be too great to permit them to be dried by air flow alone.

The bins would be equipped with drags and all hay feeding would then be completely mechanical.

That may be the future of haymaking. But there are still a lot of bugs, big ones, in it. The biggest is this matter of power. Chester Hultberg, vice-president of the

THERE'S A PLACE ON YOUR FARM FOR A PIPER

. . . to give you swift, convenient, safe transportation

Most flying farmers . . . and there are thousands of them . . . consider their airplanes essential farm equipment. They've found a plane is useful in so many ways, both for business and pleasure. Flying to stock sales, spotting soil erosion and crop blight, checking fences and wells, picking up urgently needed parts and supplies, commuting from farm to city, from one farm to another — these and many other chores are done effortlessly, efficiently and economically in your own plane.

Frequent, more distant pleasure trips for the whole family also rank high among reasons why successful, forward-thinking farmers own their own airplanes. It's not uncommon to see flying farmer families touring the Caribbean, Latin America, Canada or Alaska in their own airplanes. Statewide flying farmer organizations conduct group flight activities — breakfast flights, tours, get-togethers.

Just the sheer pleasure of flying appeals, also, to the farmer or rancher. Flying provides a fascinating recreation, a relief from the day-to-day strain of conducting a farm operation. As one doctor puts it, "An hour in my Piper is like a day off." Not to be outdone, many a farm wife has taken up flying, too.

From the standpoint of time saved, plus pleasure, a plane for you, your family, your farm can prove a wise, sound investment . . . and surprisingly economical!

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SUPER CUB. Workhorse for farm or ranch. Takes off, lands in 50 yards. Carries two, cruises 110 mph. PA-18-A model is world's most widely used plane for dusting, spraying.

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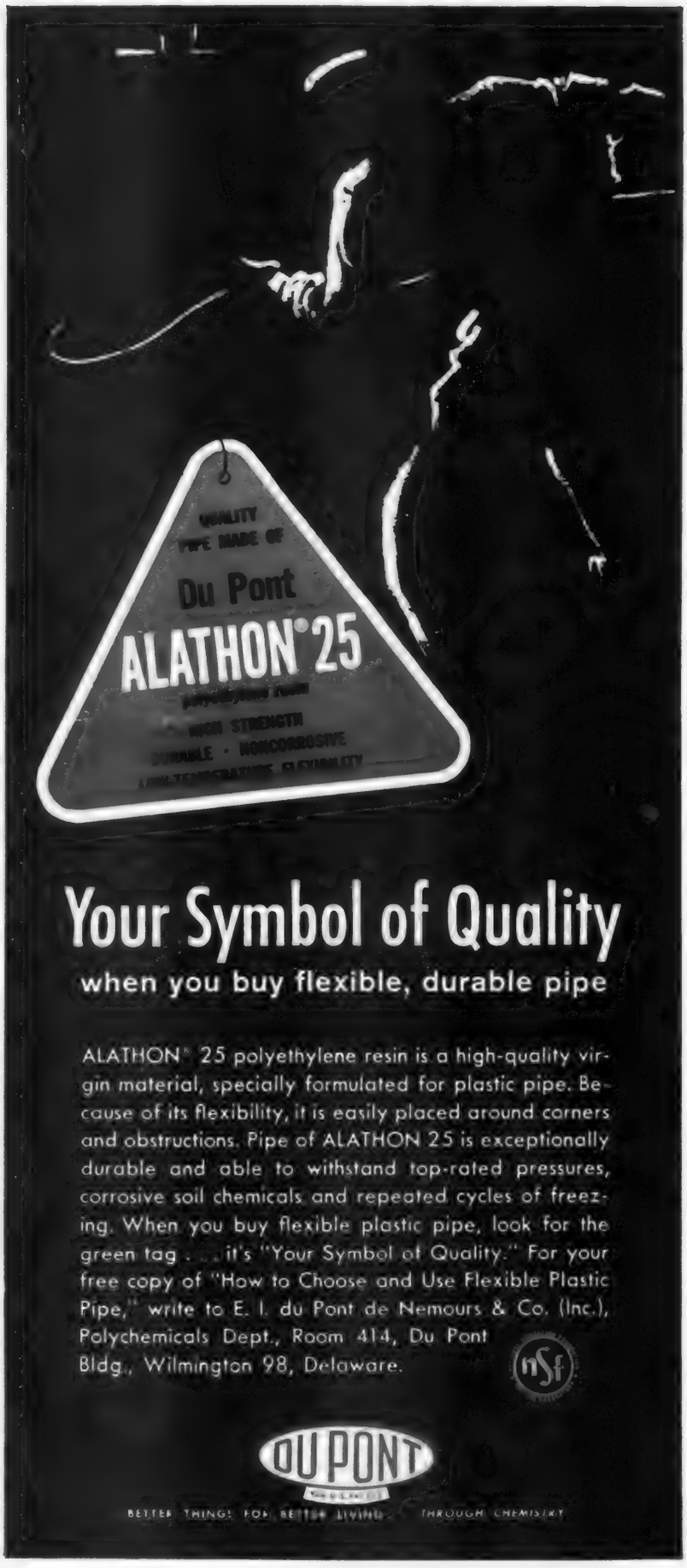
MORE PEOPLE HAVE BOUGHT PIPERS
THAN ANY OTHER PLANE IN THE WORLD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ALATHON® 25 polyethylene resin is a high-quality virgin material, specially formulated for plastic pipe. Because of its flexibility, it is easily placed around corners and obstructions. Pipe of ALATHON 25 is exceptionally durable and able to withstand top-rated pressures, corrosive soil chemicals and repeated cycles of freezing. When you buy flexible plastic pipe, look for the green tag . . . it's "Your Symbol of Quality." For your free copy of "How to Choose and Use Flexible Plastic Pipe," write to E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Dept., Room 414, Du Pont Bldg., Wilmington 98, Delaware.
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DU PONT
BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

California Pellet Mill Company, does not deny that there are some revolutionary changes imminent in pelleting; but he points out that with the equipment now available, field pelleting is economically questionable. "The equipment is heavy, capacity low, and costs are high.

"Pelleting in the common stationary set-up as we know it today is a continuous flow operation. Costs are relatively low. But an in-the-field operation where the hay would be put up in the form of large biscuits is simply a glorified baling system, which is a batch operation with high costs. A 50-pound bale can be produced as fast and as cheaply as a few 4-ounce pellets in a batch operation.

"Farmers should exercise good judgment in buying any kind of pelleting equipment," he continues. "There are some mills on the market today which sell at what seems to be a very low price. How-

COSTS

Pellet mills can be purchased in a wide range of prices. The lowest-priced commercial mill made by one of the leading manufacturers, for example, has a price tag of $2,725, complete with motor. This is a 25 to 40 horsepower mill with a capacity of about 2 tons per hour of a 100 per cent concentrate ration. If hay is added to the ration the capacity will be reduced. This same company prices its biggest mill at about $8,000.

Another manufacturer sells a basic 50-horsepower unit for $11,466. This includes the mill ($5,163), a horizontal pellet cooler ($2,170), and a 50-horsepower motor and accessories, such as a cooler fan, dust collector, motors for mixer and fan, etc.

Costs of operation vary widely, too, depending upon the source of power—diesel or electric—size of the pellets, and kind and condition of the material.

Commercial plants try to hold their costs to $2 per ton, everything included. A survey of 15 co-op mills made by the Farm Credit Administration in 1951 showed their costs of pelleting at that time running from $1.12 to $1.50 per ton. A more recent survey showed costs of commercial operations ranging from 86 cents to $3.70 per ton, with an average of $2.28.

Feed mills charge from $6 to $10 per ton for grinding, mixing and pelleting rations; from $9 to $15 for grinding and pelleting hay.

On-the-farm costs may run higher than commercial operations but the sensational results reported from experiment station tests indicated farmers could pay as much as $18 per ton to have hay pelleted and still operate as efficiently as with baled hay.

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You've always wanted to build with rustproof, heat-reflecting, profit-boosting aluminum! Now Reynolds makes it possible at little or no extra cash outlay!

Reynolds now delivers a formal "CERTIFICATE OF GUARANTEED EQUITY" with every order of Reynolds Lifetime® Aluminum farm roofing and siding...identified by the Ⓡ embossed on each sheet. This certificate establishes a guaranteed equity of approximately $3 per square (based on repurchase commitment of 10¢ per pound). *Guaranteed without time limit.* This is proof of the extra value of farm structures built with Reynolds Aluminum. In fact, this certificate can represent *extra collateral* for a larger building loan, so you may need no additional cash. Ask your bank! And make sure the aluminum you buy carries the Ⓡ for Reynolds embossed on each sheet!

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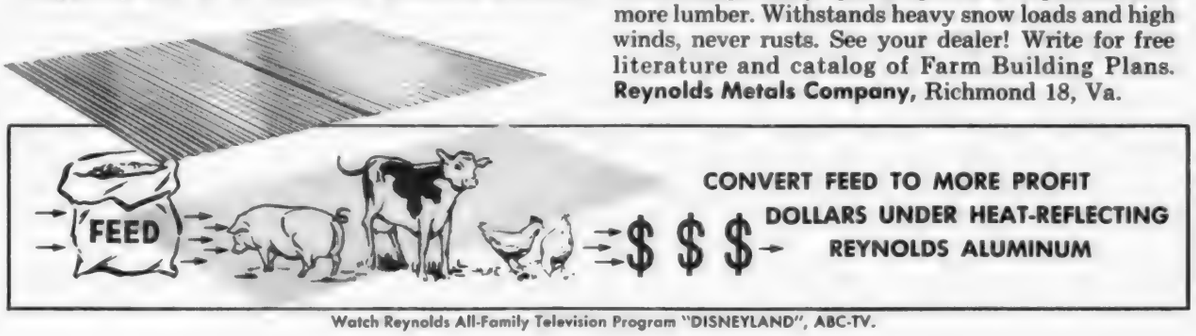
Special written Warranty in addition to the Certificate of Equity! 4 ft. actual width coverage and now lengths up to 14½ ft.—saves more labor and material.

New stronger alloy—put it up over 2 ft. purlins, save more lumber. Withstands heavy snow loads and high winds, never rusts. See your dealer! Write for free literature and catalog of Farm Building Plans. **Reynolds Metals Company,** Richmond 18, Va.



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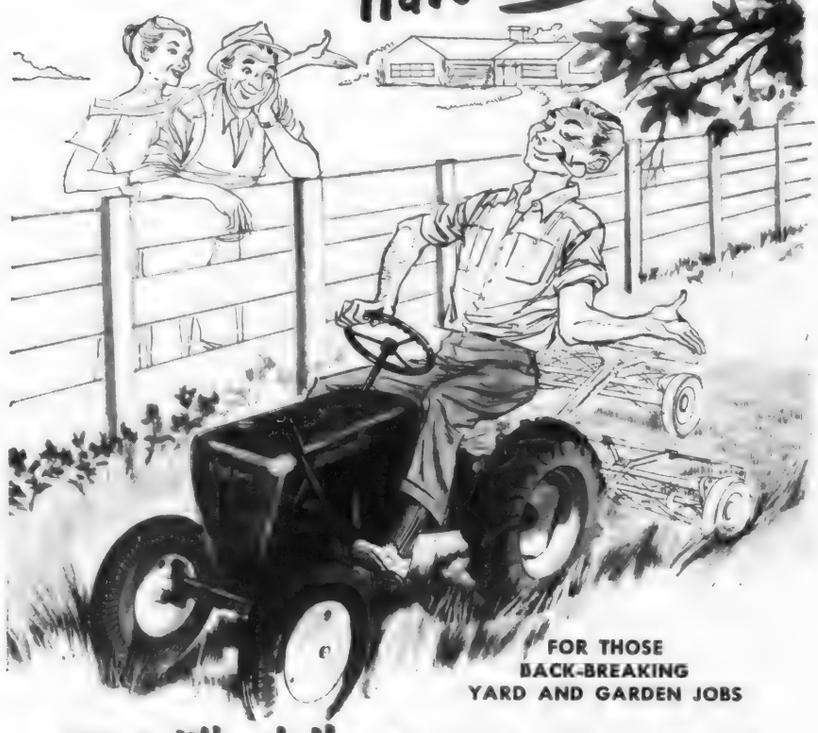

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Breeze through those tough yard jobs! Fun-test a Wheel-Horse—the modern way to really enjoy mowing, clearing snow, hauling fill or compost. Saves your back (and your heart) with extra hours for leisure year 'round.

Fun begins with solid comfort the moment you ease into the driver's seat. Set off at 6 mph in high . . . 1 mph in low. You'll find the all-new streamlined Wheel-Horse shifts, corners, backs, and stops with power response of a big tractor. It's the only yard tractor with automotive gearing, steering, and two-wheel brakes *as standard equipment.*

Take all jobs in stride with pull-power to spare! Solid weight of the all-steel body, and oversize 6:00 x 12 tractor- type tires provide plentiful traction for terraces or hilly ground. Fully guaranteed. Your only problem is with envious neighbors!

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3½ ft. snow plow makes fast work of clearing long drives.

Select from 22 attaching tools including this self-dumping trailer, rotary and reel mowers, lawnsweep, fertilizer spreader, garden plow and cultivator.

Wheel-Horse PRODUCTS

51463-B U. S. 31, South Bend, Ind.

ever, you will usually find they are made from inferior materials and the maintenance costs on them are very high. The dies are made from bronze and the die cost will run somewhere in the neighborhood of $3 per ton of pellets. Good dies are made of the best nickel alloy steel. Their initial cost is more, but they last much longer and hold the die cost to between 15 and 20 cents per ton.

"Our advice to farmers is to give every consideration to pelleting as it applies to their own feeding operation. A pellet mill is a different kind of machine from a hammermill, tractor or baler. The complications in running it come from differences in ingredients, climate, soil and the like."

More Bugs

And from another of the big pellet mill manufacturers come more words of caution. Joe Grahek of Sprout, Waldron & Company, Inc., says, "There are a number of problems before hay pelleting in the field can really be licked. In the first place, greatest economy in pelleting is achieved when the material to be pelleted is preground very fine. The finer the grind, the greater the cost of the over-all operation. Furthermore, there is some evidence to indicate that fine grinding may not be good for all ruminant animals.

"Secondly, pelleting brings in other costs in addition to the grinding. These involve equipment for steam generation, drying, cooling and power. To overcome these initial costs the volume to be handled must be appreciable.

"Thirdly, if we try to eliminate or minimize grinding we run into all kinds of problems which are bound to appreciably reduce our output per horsepower hour. The simple fact is that conventional pellet machines have not been designed for the problems involved in pelleting hay efficiently and there will be much trial and error before the machines are perfected and pelleting hay becomes economical."

Oak B. Smith, of the Wenger Mixer Company, recommends custom pelleting after the fashion of the Oregon set-up.

Whatever the bugs in the operation, all —experiment stations, engineers, manufacturers and farmers who have tried them—are agreed pellets are here to stay.

Maybe the future will be along the lines of the blueprint offered by one of the Midwest's most progressive farm managers. Says he: "We'll ignore the weather. We'll put a pellet mill on the edge of the field and work 24 hours a day. We'll grow three crops a year. Instead of waiting for the grain to mature we'll cut it and dehydrate and pellet it when the material is at its highest nutritive value."

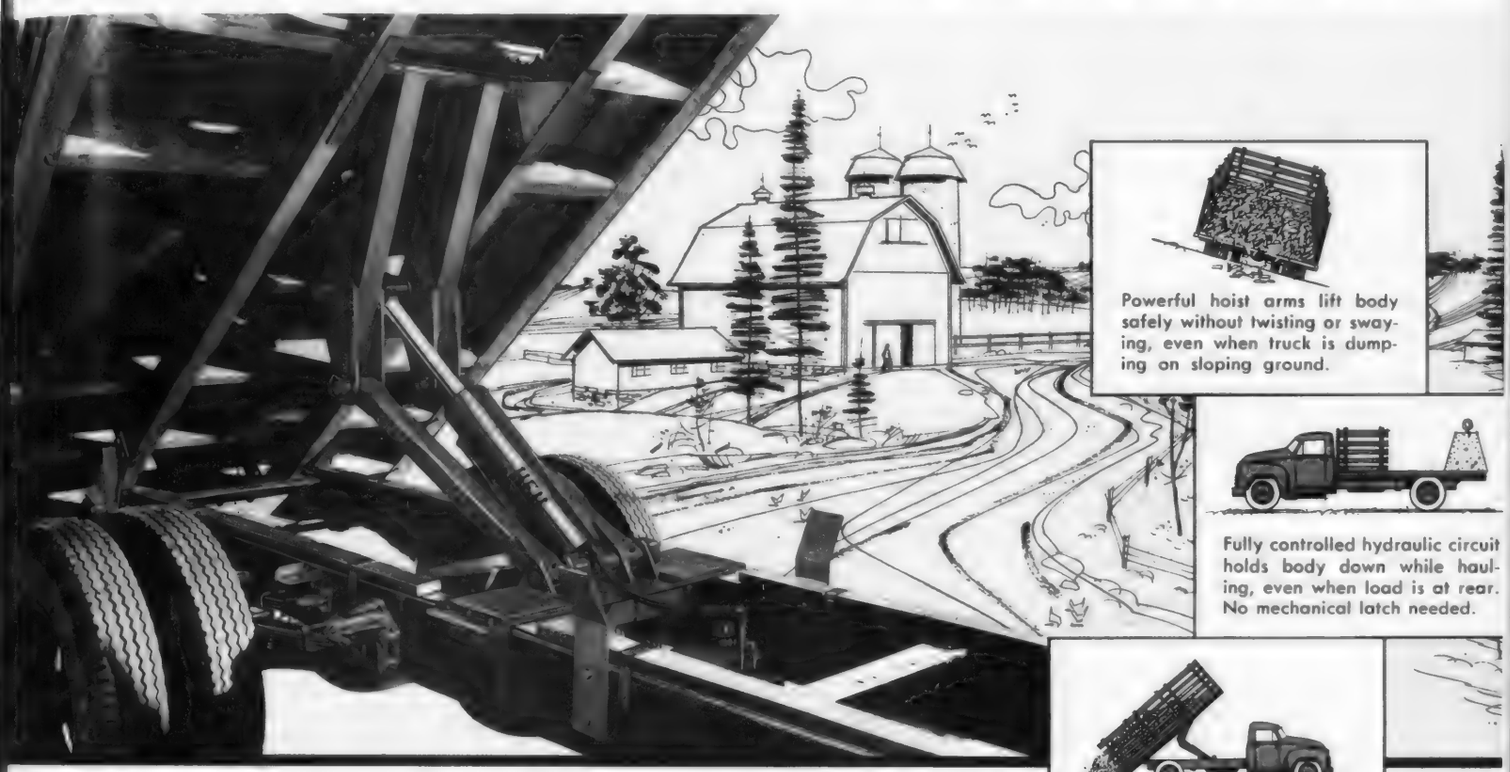
That may seem a bit far-fetched. But the fact is that right now farmers are getting increased gains from poor quality materials and saving time and money by pelleting their hay and grains.

BUY NOW!

the new HEIL Farm Hoist

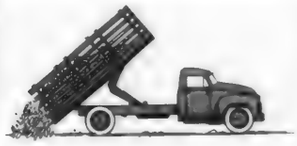
. . . HIGHEST QUALITY . . . LOW, LOW COST!

MADE BY THE WORLD'S LEADING MAKER OF CONSTRUCTION DUMP EQUIPMENT



Powerful hoist arms lift body safely without twisting or swaying, even when truck is dumping on sloping ground.

Fully controlled hydraulic circuit holds body down while hauling, even when load is at rear. No mechanical latch needed.



Exclusive hydraulic circuit prevents over-tipping of body if load shifts to rear while dumping. Protects elevators, etc.

Only the new HEIL hydraulic Farm Hoist gives you ALL these important extra features . . .

- Reserve lifting-dumping capacity . . . sealed relief valve protects hoist components and pump.
- Dumps safely, smoothly on sloped ground.
- Hoist holds body down, even if load is heavy at rear.
- Dumping is *controlled* to prevent over-tipping if weight shifts while body is rising.
- Easy to mount.
- Cylinder stays full of oil *above and below* piston . . . prevents rust damage to seals, shaft, piston and pump.
- Pump control valve removable for service.
- Highest quality construction of all components.
- Lightest weight for biggest payloads. High-pressure hydraulics give extra boost to lifting capacity of hoist cylinder, size for size.

Your nearby HEIL distributor has complete sales and service facilities . . . he's ready to serve you *any time*.

THE HEIL CO.
MILWAUKEE 1, WISCONSIN

HEIL Quality PRODUCTS

BUY YOUR HEIL HOIST BY MAIL!

ONLY $349

includes 8% Federal Excise Tax
Model 1418 (f.o.b. Milwaukee, Wis.)

☐ Enclosed is my check (or money order) for $349. Send one Model 1418 Farm Hoist (lifts up to 9½ tons) direct to me, via truck freight, collect.

☐ Enclosed is my check (or money order) for $389. Send one Model 1518 Farm Hoist (lifts up to 12½ tons) direct to me, via truck freight, collect.

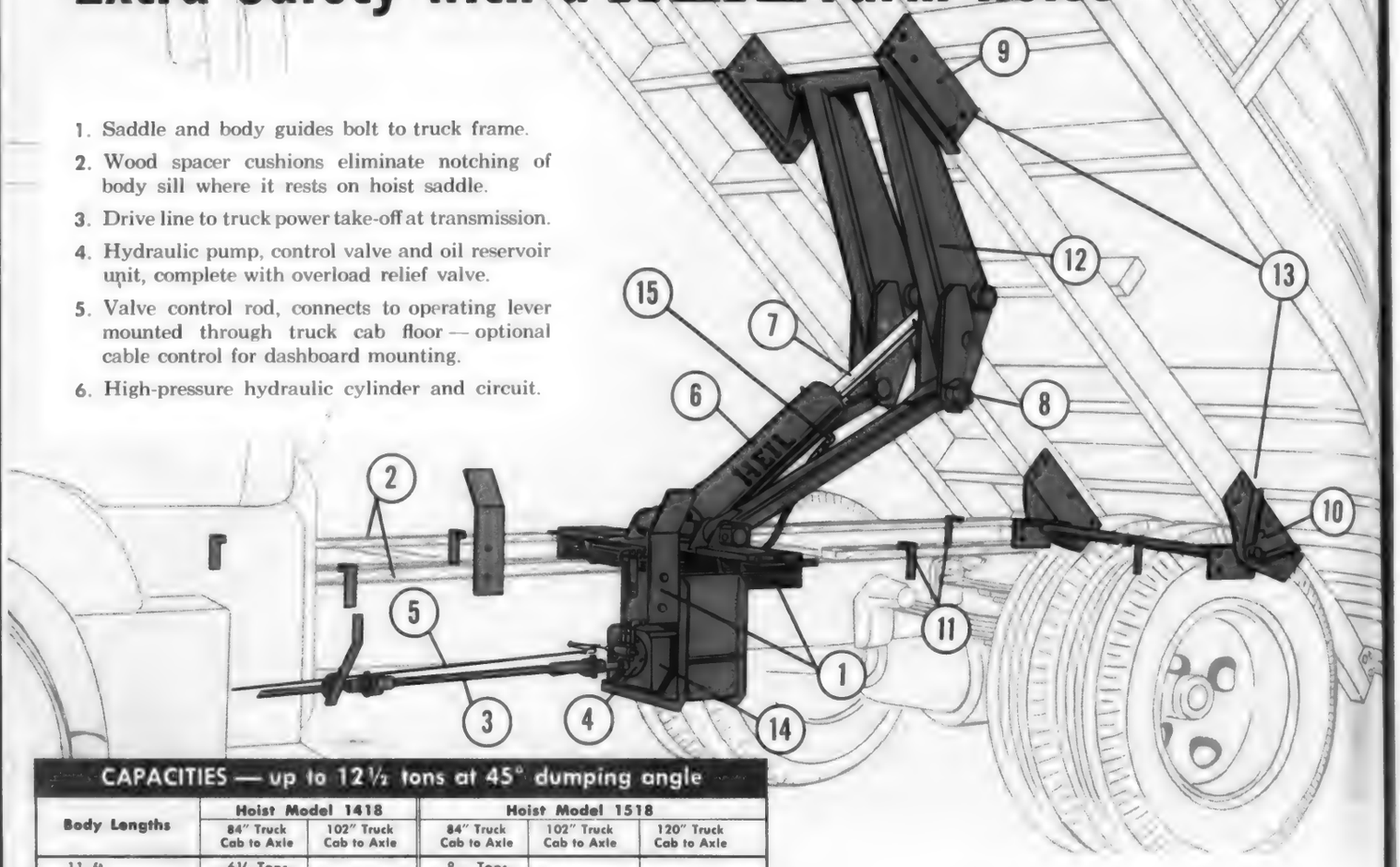
☐ Please send full information on Heil Farm Hoists and name of nearest Heil distributor.

NAME .....

ADDRESS .....

CITY ..... STATE .....

More Convenience, Greater Dependability, Extra Safety with a HEIL Farm Hoist



1. Saddle and body guides bolt to truck frame.
2. Wood spacer cushions eliminate notching of body sill where it rests on hoist saddle.
3. Drive line to truck power take-off at transmission.
4. Hydraulic pump, control valve and oil reservoir unit, complete with overload relief valve.
5. Valve control rod, connects to operating lever mounted through truck cab floor — optional cable control for dashboard mounting.
6. High-pressure hydraulic cylinder and circuit.
7. High-strength, two-inch shaft.
8. Lube fittings on all bearings.
9. Adjustable body attaching brackets — can be welded *or* bolted — fit any body sill spacing.
10. One-piece through hinge-shaft and large, strong body hinges — can be welded or bolted.
11. Clips for wood cushions, furnished with hoist.
12. Strong, rugged lift arms prevent body strains if dumping on uneven ground.
13. Hoist lifts far forward of rear hinge for best leverage — most body sills need no reinforcement.
14. Small oil reservoir mounts easier, needs less oil, saves expense and weight.
15. Internal automatic by-pass for oil pressure at top of dump stroke — needs no "shut-off cable" installation to adjust and service.

All parts easily disassembled for servicing

CAPACITIES — up to 12½ tons at 45° dumping angle

Body Lengths	Hoist Model 1418		Hoist Model 1518		
	84" Truck Cab to Axle	102" Truck Cab to Axle	84" Truck Cab to Axle	102" Truck Cab to Axle	120" Truck Cab to Axle
11 ft.	6½ Tons		8 Tons		
12 ft.	6½ Tons		10 Tons		
12 ft. 6 in.	8 Tons	5½ Tons	11 Tons	7½ Tons	
13 ft.	8½ Tons	6 Tons	12 Tons	8 Tons	
13 ft. 6 in.	9½ Tons	6 Tons	12½ Tons	8½ Tons	
14 ft.		6½ Tons		9 Tons	6½ Tons
14 ft. 6 in.		7 Tons		9½ Tons	6½ Tons
15 ft.		7½ Tons		10 Tons	7 Tons
15 ft. 6 in.	*The Heil Co. reserves the right to change prices and specifications without notice.*				7½ Tons
16 ft.					8 Tons
17 ft.					9 Tons

SPECIFICATIONS

	Shipping Weight	Pump	Capacity	Cyl. Diameter
Model 1518	500 lbs.	4 Piston	See Chart	5"
Model 1418	460 lbs.	2 Piston	See Chart	4"

FIRST CLASS
Permit No. 1341
Milwaukee, Wis.

BUSINESS REPLY CARD
No postage stamp necessary if mailed in the United States

4¢ postage will be paid by —

THE HEIL CO.
BOX 2086
MILWAUKEE 1, WIS.

HEIL Quality Products

THE HEIL CO.
MILWAUKEE 1, WISCONSIN

LITHO IN U.S.A.

Here's "years ahead" design that means

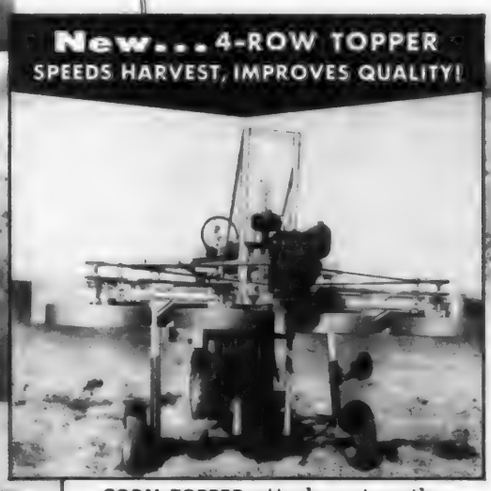
EXTRA BUSHELS THIS FALL!

FARMHAND-KROMER HY-ROW SPRAYERS—your best crop insurance from pre-emergence to harvest. Corn growers need it for weed control. Ideal for controlling corn borers and ear worms; for applying liquid fertilizers. Your Farmhand-Kromer Hy-Row will do these jobs better, more economically.

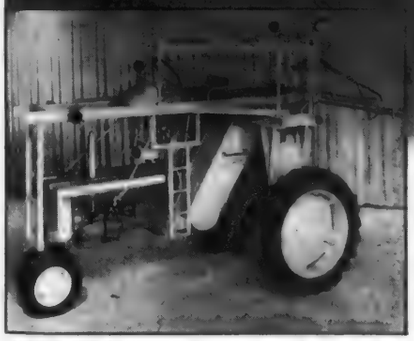
Cotton and tobacco growers need a Farmhand-Kromer Hy-Row Sprayer to increase yields at a low per-acre cost. Unmatched for fast, accurate cotton defoliation.

THE FINEST HY-ROW SPRAYER MADE—that's Farmhand-Kromer. Ample power, easy steering, rugged construction throughout, large capacity Finish "X" tank and booms, special Kromer pumps and optional hydraulic boom lift. All controls within easy reach of the operator. Several models available to meet your exact needs.

New... 4-ROW TOPPER
SPEEDS HARVEST, IMPROVES QUALITY!



CORN TOPPER attachment on the Farmhand-Kromer Hy-Row is designed to handle four rows at a time and do a fast, thorough topping job. Corn matures earlier, is less likely to suffer wind damage, and topped corn is easier to harvest. Ask your dealer about this new Topper attachment.



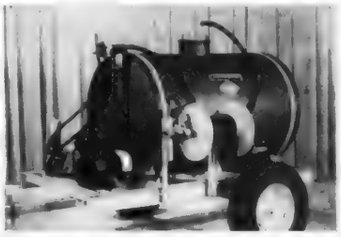
MODEL 400 for top performance under toughest conditions. Husky water-cooled engine, 300-gal. Finish "X" tank, rear wheel drive, tractor-type steering and transmission.

MODEL 50 for dependable Hy-Row spraying at lowest cost. Air-cooled 12.5 H.P. engine; variable speed drive, 0 to 10 M.P.H.; 105-gal. Finish "X" tank.

FINISH "X" booms and tanks are unconditionally guaranteed against damage from rust and corrosion.

Certified RUST PROTECTION KROMER FINISH "X"

A FARMHAND-KROMER SPRAYER FOR EVERY NEED



GUN-TYPE SPRAYERS are available in 125, 200 and 300-gal. sizes to handle all spraying jobs. Farmhand-Kromer hand guns deliver fog to solid streams for cattle or orchard spraying. Also available with a roadside nozzle, ideal for roadside spraying. Equipped with Finish "X" tank. Trailer or skid-mounted.

DELUXE TRAILER SPRAYERS are perfect for fertilizer application, weed and insect control. 200 or 300 gallon tanks; full 1" diam. boom tapped every 10" for selective coverage. Tanks and booms Finish "X" coated. Sliding boom rack, choice of roller or piston pumps.

FREE INFORMATION!

Write: **THE FARMHAND CO., DEPT. FQ-68**
Hopkins, Minn.

Send material on_____
I am a student, send special material ☐

Name_____

Address_____

Town_____ State_____

A Division of Superior Separator Company

Farmhand
FIRST IN FARM MATERIALS-HANDLING

Here's the key to low-cost irrigation

USS National Polyethylene Pipe—NSF Grade

This rugged plastic pipe is the answer to your irrigation problems. Low-cost USS National Polyethylene Pipe is so lightweight it can be carried in a roll like hose . . . so flexible it can be run around corners, over obstacles and under fences . . . it resists corrosion, acids, alkalies and salts. And National Polyethylene Pipe retains its flexibility and toughness over its entire working range from minus 90°F. to plus 120°F.

Vital statistics—National Polyethylene Pipe is made of 100% virgin polyethylene plastic to which 3% carbon black filler has been added to prevent deterioration from ultraviolet rays. It is available in lengths up to 400 feet, and sizes from ½-inch to 6 inches in diameter. The inner surface of the pipe is smooth . . . offers little flow resistance.

Installation—National Polyethylene Pipe is amazingly easy to work with—installation is a one-man job. Just carry a coil on your shoulder to where you want it and unroll it. Cut it with a hacksaw or a knife, insert the fittings and secure them with a clamp.

Get complete details on the many uses of National Polyethylene Pipe by writing to: National Tube Division, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa. Ask for Bulletin No. 29.

USS and National are trademarks

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
United States Steel Export Company, New York

National Tube
Division of
United States Steel

"The world's largest and most experienced manufacturer of tubular products—National Tube"

THE KING TAKES A WALK

(*Continued from page* 56)

that bogged in and planted it, tended it, and harvested it. So the freeing of the slaves was a blow to the rice industry.

At War's end neither black man nor white man knew anything else but rice growing. So they got together, as best they could, under the changing order, and grew rice in a faltering way until the early Nineties. Then a great storm came in from the sea, broke the dikes, salted the fields, and that was the death knell of the rice industry here. It moved to easier lands farther west.

Change, change, the constancy of change!

Now we see signs of rice coming back to those same lands that had gone back to jungle. Not now on the bare feet of slaves, thanks be. But on the pneumatic tires of mechanical monsters that crawl across the marshy land like a spider, subdue it, and farm it in rice. Only pinching rice quotas have halted this growing return of rice to the lands from which it went a half century ago.

When rice was king its throne was being disputed by another giant, cotton. And when rice went, cotton promptly assumed the undisputed throne.

That brings us up to about the time you and I discovered America. When we came on the scene we found King Cotton (so dubbed by Senator Hammond of South Carolina back in the Eighties) on the throne. And cotton was truly the king of crops, here and all over the Southeast.

When cotton was supreme, and it was for several generations, we put just about all of our good land in it. South Carolina planted just under the three million mark for years. Not only all of our good land, but our every interest centered on this crop. Such selvages, remnants, and poorer areas as were left, we'd put in other things. But when cotton was calling, that's where we went, and it called often. Other crops had to make out as best they could, sort of stepchildren. Cotton was our sole source of credit.

Slavery entered the early history of cotton, too, as it had with rice. The climate and the crop made a natural for the profitable use of slaves.

The freeing of the slaves and the War Between the States were severe blows to cotton. Following the devastating war, the countryside was in utter ruin—wealth and livestock gone, and whites and blacks alike in destitution. Cotton production in the South dropped from 5,195,000 bales in 1859 to a bare 299,000 in the dark year of 1864. This skimpy cotton crop was about the only income for a vast, war-ravaged area! Whites and blacks ate crow together then.

During those dreadful times a system of tenure sprang up often criticized in later years by those who did not understand its dire origin.

Picture the area then, utterly destitute

Some pinch...
others crush...

but only Brillion

pinches, crushes and buckles for

TRIPLE ACTION

hay conditioning

Some conditioners pinch, others crush . . . *only a Brillion pinches, crushes and buckles.* The pick-up and guide rolls pinch all stems, then feed them to the two rear crusher rolls. But because rear rolls move slower, stems buckle before entering. That's Triple-Action! So effective it even crushes stem nodes . . . conditions *every* stem no matter how it lies in the swath. Means uniform drying—higher quality hay — less money for supplements. Call your Brillion dealer today.

Leaves the moisture in the field— the leaves on the plant

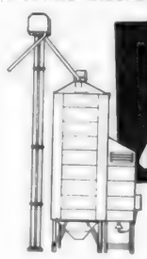
Brillion

HAY CONDITIONER

IF BRILLION MAKES IT — IT MUST BE GOOD

Clip and mail to Brillion Iron Works, Inc.
Dept. HC-3-6, Brillion, Wisconsin
Send complete information on the new Brillion Hay Conditioner.
☐ I am a student
I have.....acres legume hay
Write your name and address in the margin.

GRAIN DRYERS



NEW MEYER ORIALL

CONTINUOUS FLOW
—gives highest capacity
—most unifrom drying

LABOR SAVING
—no extra labor required
—just dump grain
—grain is automatically and continuously fed, dried, cooled and carried to dry bin
—entire operation is automatic
Write today for FREE literature

MEYER MFG. CO.
Box 4952 Morton, Ill.
MAKERS OF FAMOUS MEYER ELEVATORS

How to start a GUERNSEY HERD

Gentle, efficient Guernseys hold the key to success in Modern dairying. They're long-living, produce at high levels and earn more per dollar invested. Write today.

AMERICAN GUERNSEY CATTLE CLUB
832 Main Street, Peterborough, N. H.

☐ Send FREE information on how to start a Guernsey herd and buy breeding stock.
☐ Send FREE information about the profitable business selling nationally-advertised Golden Guernsey Milk.

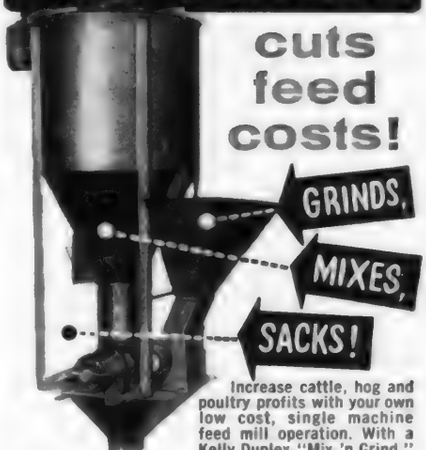
Name.....
Address.....
Town.....State.....

of supplies, workstock, or credit. All the whites had was the battered land. All the colored man had was his strong arm. Few merchants were able to get even the most meager of supplies. So these three, almost a holy trinity, did the only earthly thing that was open to them. They got together, as best they could, and pooled their resources. The white man put up his land, the colored man put up his strong arm, and the merchant advanced the scant supplies. And there we had the birth of sharecropping. Whether good or bad, it served its purpose of putting men and land back to work, when all other avenues were closed. It served a purpose when there was no other alternative. We now have far less of it for many of those former sharecroppers now own their own acres.

As the post-war adjustments were made, cotton came back and for decades helped give this nation its favorable balance of trade, while it was growing into greatness. Decade after decade, cotton became a little more the master. It was all we knew, all we were equipped for, and our only source of credit. For when you talked cotton you talked money. You could always sell it, at a price, while there were no established markets for much of anything else.

The cotton farmer lived almost altogether on hope, hope that the price of cotton next year would be better. And when it wasn't, he occasionally sold some land or timber to pay the difference. He was ever clearing new lands for cotton, from which he'd mine the fertility until the gullies got so big a mule couldn't cross

NEW KELLY DUPLEX "MIX 'N GRIND"



Increase cattle, hog and poultry profits with your own low cost, single machine feed mill operation. With a Kelly Duplex "Mix 'n Grind," one man can grind, mix and sack a complete batch of accurately blended formula feed in less than 20 minutes—at a lower per ton cost than ever before possible. Built for rugged feed mill demands, it requires minimum space, is easy to operate, uses only two low horsepower motors. Made in 1, 1½ and 2 ton models. Satisfaction guaranteed or money back. Mail coupon today!

The DUPLEX MILL & MFG. CO., Box FQ, Springfield, Ohio
Send me full details on the "Mix 'n Grind"

NAME_____
ADDRESS_____
CITY_____ STATE_____

Which hen lays the GOLDEN EGGS?

The GOLDEN EGGS are the bonus eggs you get with RED ROSE Feeds

Most hens have the ability to produce 300 eggs a year. What you feed them makes the difference between breaking even at 50% lay . . . or making a profit with the Golden Eggs that come from 60%, 70% or 80% production. By following the Red Rose Program and feeding for the Golden Eggs you increase your income and reduce your cost per dozen . . . without an ounce of extra effort on your part.

Scientifically developed and tested Red Rose feeds provide the extra energy and production that mean more Golden Eggs. Put your flock on Red Rose Complete Laying Ration and Red Rose Poultry Feeds now . . . to get those profitable Golden Eggs.

Percentage of Flock Lay	Pounds Feed Per Dozen Eggs	Extra Dozen Eggs You Get	Increased Income Per Ton of Feed From The "Golden Eggs"
50%	5.52	0	0
60%	4.77	57	$28.50
70%	4.43	89	$44.50
80%	3.81	163	$81.50

Feed required per doz. at different rates of production based on studies at Red Rose Research Center.

RED ROSE
GUARANTEED FEEDS
JOHN W. Eshelman & SONS
ESTABLISHED 1842
LANCASTER, PA. • YORK, PA. • CIRCLEVILLE, OHIO
TAMPA, FLA. • SANFORD, N.C. • CHAMBLEE, GA.

Distributors from Maine to Florida; Ohio to the Atlantic

them. Then he abandoned the field, and it went back to pines and poverty grass.

He was always clearing new ground for cotton. With corn in it a year or so, to get the roots and bushes worked out, he'd then put it in cotton as long as he could.

Despite the economic condition of the farmer back then, he had utmost faith in cotton. For he had known nothing else. It was a way with us, as it had been with the generations before. All we had, came from the crop. If we had read history, I'm sure our people would have been uneasy. They would have seen that crops didn't stay put; or at least they never had. And this State which had by then become so populous would surely go to wrack and ruin if history should repeat itself, and this great crop, cotton, on which everything so largely depended, should go. When flax and indigo failed, the country was young, people were few, costs were low, and taxes almost non-existent. One could virtually live off the wilderness then. Not now, in the time of King Cotton!

But most people don't read history, especially if it does not conform to their liking. We all went supinely on into the Twentieth Century with cotton as absolute monarch in a good portion of this southern country.

The constancy of change will not be stopped. Now we well know that things started happening to cotton along in the early Twenties.

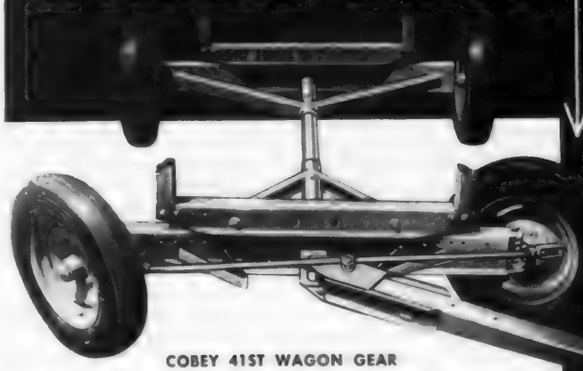
First was the coming of the boll weevil, greatest insect destroyer of all time! In 1920, just before the weevil reached us, Sumter County, where I was County Agent, made 65,000 bales of cotton—just a good, average crop. We lived off that cotton; had very little else in the way of income. The boll weevil got in a little that fall, but not early enough to do any damage. He had been in this country since 1892 when the first cotton was planted along the Rio Grande at Brownsville, Texas, giving him a bridge from his native habitat on wild cottons in Mexico. From there he advanced about 60 miles a year in a widening arc until he reached the Atlantic Seaboard about 1920, where weevils destroyed for all time the famous Sea Island cotton industry that had long thrived there.

After reaching Sumter County in the fall of 1920, it took the boll weevil all the following year to build up and 1922 was our first real boll weevil cotton crop. And how much did we make then, with just as much acreage, effort, and fertilizer as in 1920? We made 9,000 bales. From 65 down to 9!

That was all but a knockout blow. But we knew nothing else. When the price was low and the weevil left him fewer pounds, the average man stretched himself for more acres to make up the difference. Cotton was the basis for credit and everything else. Cotton was King, a disturbed and troubled king, but king no less.

Life on the cotton farm became more and more precarious. There were no more new lands whose virgin fertility we could

ALL YOU COULD ASK FOR *and then some*
in the NEW "Pull-From-Front to Rear" Cobey
WAGON GEARS



ONLY COBEY COMBINES ALL THESE FEATURES!

★ A SINGLE REINFORCED UNIT—distributing pull over both front and rear axles.

★ AXLES, HOUNDS, AND REACH POLE HOUSINGS welded into high-strength triangle construction.

★ AXLES AND HOUNDS reinforced with welded steel gussets.

★ BEST IN WHEEL DESIGN—Automotive type steering—forged steel steering arms and spindles—oil impregnated bronze bushings—require no grease.

★ NEW POSITIVE TONGUE STOPS

★ TAPERED ROLLER WHEEL BEARINGS

★ BIG 6-TON CAPACITY

★ 88" TO 124" WHEEL BASE—

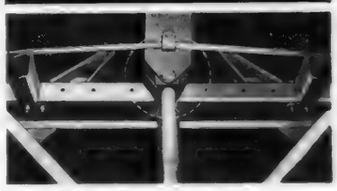
72" tread—
turning radius 12'2"

COBEY 41ST WAGON GEAR
(Other Models and Capacities Available)

From Cobey—a name famous for the best in wagon gears—now comes new improved gears with the exclusive Cobey "PULL-FROM-FRONT-TO-REAR" DESIGN FEATURE!

In these Cobey Gears, the reach-pole housing extends thru the heavy hat-shaped front axle and is firmly welded to the axle—both sides. The tongue is then anchored (not to the axle as ordinarily done) but directly to the reach-pole housing. With axles, reach-pole housings, and hounds securely welded into single triangular units, the reach-pole, when in place, provides one single reinforced unit from tongue-tip to rear axle. The pull is not confined to the front axle. IT IS DISTRIBUTED OVER BOTH AXLES—GIVING TREMENDOUS STRENGTH TO HANDLE THE HARDEST PULLS!

Here's a gear for the hard jobs—a gear that will outlast, outperform the ordinary gear 10 to 1. See your Dealer or write Cobey direct for full facts.



PULL FROM FRONT TO REAR
—ONE REINFORCED UNIT

Reach pole housing extends thru front axle permitting direct anchoring to tongue. Thus, tongue, axles, and reach pole are actually one single reinforced unit—giving tremendous strength to handle the hardest pulls.

COBEY 51-B
SELF-UNLOADING
FORAGE WAGON

From hauling 138 bales of alfalfa to bringing in 5 tons of ensilage at a load—and all the jobs in between—your Cobey 51-B will do them all. Send for full information!

THE COBEY CORPORATION
206 SOUTH WEST STREET GALION, OHIO
PTO SPREADERS · COMPLETE LINE OF WAGONS · 3 POINT HITCH TOOLS · MULCHERS · PULVERIZERS · ROTARY HOES

TORNADO in Milk Tank CUTS CLEANING Time!

The girl above, with a touch of her fingers, controls a tornado . . . an automatic, *cleansing* tornado in a farm milk tank. Simply turning a control knob starts Zero's Spatter-Spray washing up for you. **This exciting new labor-saver is attracting national attention.**

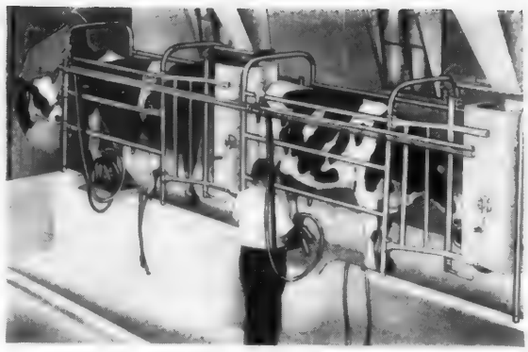
Exactly the same design features that have always made Zero's round vacuum tank easier to *brush* clean make it possible today to wash *automatically*. It's a logical development of Zero's Super Strainer, direct cow-to-tank hook-up, and other Zero labor-savers.

Mechanically, it's simple. The variable speed motor turns the agitator at low speed during cooling, at a faster speed for butterfat testing. When the tank is empty the agitator spins at top speed . . . to wash, rinse and sanitize.

Zero offers you a tank with a future. Send post card today for complete information.

ZERO Sales Corporation
679-F Duncan Ave., Washington, Mo.

PLANNING TO MODERNIZE your farm? Looking for ways to save chore time, enlarge your herd, and make your life easier by mechanizing your livestock operation? Write to Clay for free idea books to help you in planning mechanized barn cleaning, silo unloading and bunk feeding, parlor milking and crop drying.



How to plan for Parlor Milking
(and keep the cost in line)

Start your parlor planning with a good look at your entire farmstead layout. Check your feed lot, feed storage and building arrangement. Then see what can be done to make your work easier and more profitable. Parlor milking is a big labor saver in either a stall barn or loose housing set-up. And you save *more* labor and money when it fits into a correct overall plan.

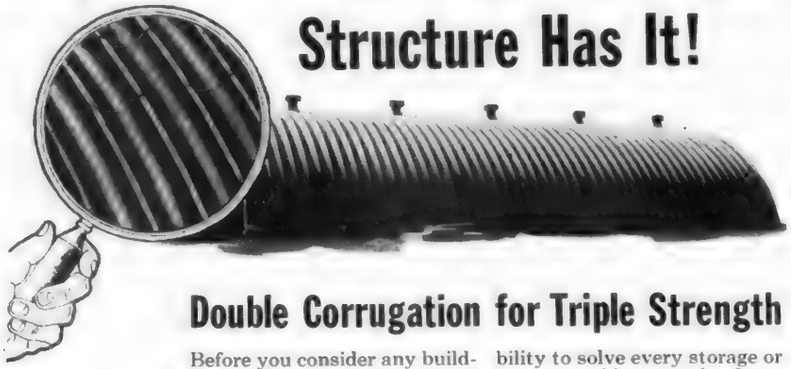
Milk standing up . . . In a modern parlor you'll feed and milk without stooping . . . with few steps. In a low cost four stall walk-thru or gate type parlor one man can manage 30 cows per hour. Six stalls enable a fast operator to handle 45 cows per hour. With a CLAY Herringbone parlor one man can milk *and feed* up to 60 cows per hour. Plan to feed your cows while you milk. You can do it with a flick of the wrist with CLAY Feeders . . . They're built into the stall to save space and cut cost.

Ventilation, lighting, water supply and drainage should also be carefully considered. Make sure your parlor is designed for future pipeline and bulk cooler to save money.

Free planning help. Parlor milking is discussed in detail in an informative new booklet by CLAY. The booklet contains numerous parlor and milk room plans. Tips on farmstead layout are included. Also ask about CLAY's new Purchase Plan. A 20% initial investment is all you need to buy your CLAY Milking Parlor. For complete information, write to CLAY, *today*.

CLAY EQUIPMENT CORPORATION • 682 Fulton Street, Cedar Falls, Iowa

Only An All-Steel Wonder Building® Structure Has It!



Double Corrugation for Triple Strength

★**100% USABLE SPACE**—No trusses, braces or posts of any kind

★**EASY-TO-ERECT**—Do-it-yourself

★**MINIMUM MAINTENANCE**—Double Corrugation assures triple durability.

Before you consider any building investigate the big savings only an all-steel WONDER BUILDING unit with double corrugation can provide. Simple to erect, you can do-it-yourself—yet a WONDER BUILDING structure is the strongest known.

A WONDER BUILDING structure features amazing adaptability to solve every storage or shelter problem on the farm. You can get a WONDER BUILDING unit with straight sidewalls or arch construction—in a wide range of widths, any length, and any size door opening. All at a low cost afforded only by the patented double corrugation WONDER BUILDING STRUCTURE.

"ENGINEERED TO THE MARKETS" TRADEMARK

Wonder Building

WONDER BUILDING CORPORATION OF AMERICA
30 N. LaSalle · Chicago 2, Ill.

WRITE TODAY FOR FREE ILLUSTRATED CATALOG ON BUILDING IDEAS

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RFD or Street_____
Town_____ State_____

throw into the hopper, for this time we had used about all of the arable ones. Low prices came on top of the weevil. The few dollars that cotton brought didn't amount to much when they were divided all around. Mechanization was sought as a way out for some, and the great pool of cheap labor which had always been inherent in the cotton country, started leaving for greener pastures in centers of industry. This was a blessing in disguise, for the cheap surplus labor we had always had never did anything but cheapen everything, and white man and black man suffered together. So, breaking the floodgates of this great uneconomic labor pool and letting it seek a better level was good for those who went and for those who stayed. Now, when the cotton pie was cut, the pieces could be a little bigger for those who stayed.

The Blessed Weevil

As bad as the boll weevil was, and still is, many now view it as a blessing in disguise for this area. At Enterprise, Alabama, they even erected a monument to the boll weevil, in an area once all cotton, but now diversified with varied crops and livestock, a change the weevil forced.

Through the ups and downs since the weevil came, cotton has not gone. But it is vastly changed. Pickens County, where I live, was the first in South Carolina to average a bale per acre. Then we were making over 20,000 bales a year. Last year we made a few less than one thousand!

This is an extreme case. But the state as a whole has reduced its cotton acreage from almost three million acres to a bare half-million. And it is still headed downward. Other Southeastern states share this trend.

Now just what is happening on cotton's lost acres? We have a lot of 'em. But we don't have much more arable land in this country, and we are a fast-growing nation. What is happening on cotton's lost acres is important.

Many things are happening there, some of great significance, not only here but to the rest of the country.

Grass is the most important newcomer to cotton's lost acres. Not grass as we have known it in the past, as a pest in the cotton patch, but grass in an entirely different role, grass as a crop! Up to recent years we were known as "the short grass area" of this country. That was not a term of derision thrown at us, either; it was one we earned.

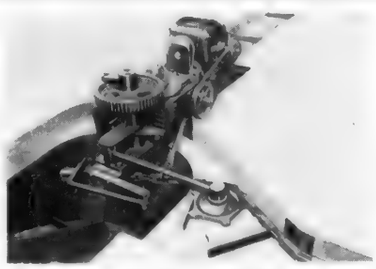
Until recent years pasture was the poorest piece of old gullied-up and worn-out cotton land on the place, with a rickety rail fence or a few strands of rusty barbed-wire staggering around it on drunken posts. Poor cattle sauntered around getting exercise, but very little to eat. If there was any grass in it, it was indeed short. For those gaunt cattle that had browsed through the winter on briers, weeds, and bushes, nipped the sparse poverty grass off

as soon as it showed green above ground. Quite naturally, our grass was short, and we got nowhere with livestock. We were apparently condemned forever to be a grower of row crops, wherewith our soils would continue to run away in red-water to the sea, and we would grow poorer with them.

But at long last science started turning its beam on grass. Not to learn how to kill it, as of old, but how to cater to its whims and caprices, learn its likes and dislikes, how to manage it. They came up with a rather startling discovery. They found, instead of being "the short grass area" of this country, if anything, we were the *long grass area!* What mighty meaning is packed in that for us.

We are still in the very ABC's of grass as a crop. The full know-how does not come naturally. But through experiment and experience it is coming. With this is coming cattle. In the past eight years South Carolina has made the greatest percentage advance in cattle of any state, and all the Southeast states have shown similar progress. Not only have cattle numbers increased phenomenally, but their quality has increased even more.

We have almost achieved the cattleman's dream of year-around grazing. In milder winters, we have it now. But it is still safer to lay in roughage for two to three months of the coldest weather. This is a pasture by-product. We bale a lot of



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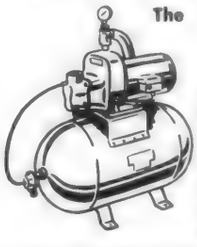

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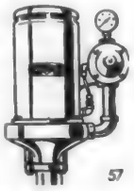

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grain straw behind the combines. And those who have enough of that great grass, Coastal Bermuda, will have too much at the peak of the season. Then the future grazing is improved and a winter supply of fine hay assured by mowing off the surplus growth. Several tons of hay that analyzes as high in protein as alfalfa can be cut from an acre of this pasture.

Pine on Cotton Land

Another crop that's coming fast to many of cotton's lost acres is pine trees. Plain old pine trees, which we once regarded as lightly as we did grass. They were everywhere, impediments on the land, and made it hard to clear with axe, pick, and shovel. Their stumps planted their lightwood roots in the soil and defied time. And we broke plowpoints on them as long as the land would do for cotton. We saw trees as our enemies, inexhaustible. We cut such good ones as needed, and applied wanton torch to what was left. And this firing was done annually, so the puny green grass could come a little earlier and rescue hungry cattle that had staggered through the winter.

All of that concept is changing and changing fast. Our states now grow pine seedlings by the multiplied millions, and some private agencies do too. Our people take good money and buy these seedlings. Not only that, they bend their weary backs and set them out. Now, when a southern farmer does that he is a changed man. And what meaning that has for our future!

In place of ruinous hog-around cutting of timber, we selectively cut it, make improvement thinnings, teach forestry to our youngsters through 4-H and FFA, organize fire control in every county, and have many farms designated as "tree farms."

Not only are we taking better care of our woodlands, but a fuller utilization is made of what's cut. The small thinnings are used for treated fence posts, the next size for pulpwood that has a cash market in every county, then come poles, and finally sawtimber, selectively cut from the area during the final maturity period. Nothing but the sawdust is wasted. The tops from sawtimber are used for pulpwood in many cases, and now even the slabs are being debarked, chipped up, and sold to the paper mills.

Pine trees grow fast here. Pulpwood size is reached in 12 to 15 years, poles in 15 to 25 years, and after that begins the real harvest of sawtimber.

So trees are coming to many of cotton's lost acres.

Small grain and corn are coming, too. In the past these all played second fiddle to cotton. Not now. We bear down on them and yields are now about double what they once were. This means livestock of all sorts, and poultry too. With much sun and long growing seasons, this area has wide adaptations for things other than cotton.

The New Kingdom

This vanishing of the power of a king has

Tree Talk
by
Will Rusch

Thought you folks might be interested in some treeplanting facts I ran across the other day. Did you know, for instance, that the first record of reforesting fire-scarred acres for commercial purposes was in Germany more than 600 years ago? It's true!

Our own government first started experimenting with the planting of live oaks in 1827. Since then, tree planting has become big profitable business, especially with the shift in emphasis from planting on public to private lands. Authorities report that one billion trees were planted in the U.S. last year! 86% of this was done on private lands.

What does that mean? It means a big hungry market for pulpwood and saw logs. And that kind of market means plenty of profits in tree farming. Something to think about, isn't it?

* * *

Something else to think about is how to protect your Tree Farm from insects and diseases. Best way of all is to keep your stand in a thrifty growing condition by constant careful thinning.

Bark beetles, for instance, will quickly go to work on any injured wood. Best defense against these rascals is to cart the salvageable materials to a mill, burn the unsalvageable material, and spray the stand with benzene hexachloride solution.

Another common insect pest is the Nantucket pine tip moth, which specializes in loblolly and shortleaf pine. Protect seedlings from this pest by dipping them in 1% white oil emulsion. During moth emergence, spray infected trees with 1% DDT.

Then there's oak wilt, particularly damaging to red, black and white oak. You can spot this one by the curling and loss of color of older leaves in the crown and a gradual shedding of the leaves. Left alone, the trees will be dead in a year or two. To control and check the infection, cut root connections between the diseased and healthy trees.

Vines are serious pests in some sections because they cut off light and use up the moisture. To get rid of them, paint the vines close to the base with 2, 4, 5-T.

* * *

Last few months I've been doing so much talking about the low-priced Mac 35, I haven't had a chance to tell you much about the other McCulloch chain saws. Take the D-44, for example. It's exceptionally light, has a great reputation for durability and low-cost operation, and cuts with a self-feeding action that takes most of the effort out of making a cut. It's a real production tool, ideal for pulpwood, sawtimber, ties, and other tree-farming jobs. Try a D-44 or its high-powered brother, the Super 44, next time you are near your McCulloch dealer. If you don't know the address of your nearest McCulloch dealer, just write me, Will Rusch, at

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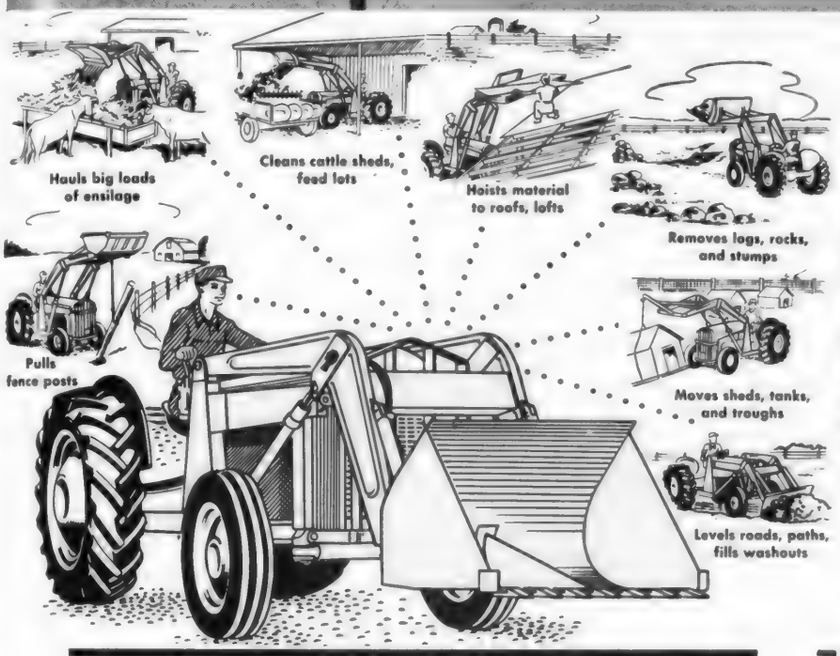
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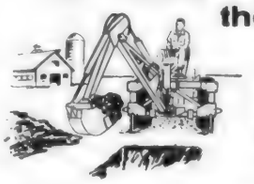

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its meaning in other farming areas too. Cotton has invaded the far Southwest during its flight from the Southeast. Thirty-odd years ago Arizona, California, and New Mexico weren't listed as cotton-growing areas. Now cotton is by far the most valuable crop of each. Take famed California, big in practically every major money crop that's grown anywhere in North America. Its annual cotton crop, produced in a few small spots on its big map, is worth many times any other crop it grows! In fact, more than the next four highest put together! And in just the few oases where it is grown in the other two states out there, it so far outranks other crops in value that none are close to it.

Arizona alone last year made more cotton on its 350,000 acres than Georgia and South Carolina, in the old cotton belt, did on their combined 1,078,000 acres. They averaged 1,108 pounds of lint per acre and we averaged 327! California, a rather new state with cotton, made 75,000 bales more on its 716,000 acres than North Carolina, South Carolina, Georgia, and Tennessee did on their combined 1,908,000 acres. While New Mexico, the smallest cotton-growing state out there, made 10,000 bales more on its 181,000 acres than North Carolina did on its 355,000.

In the light of these facts, it appears that cotton is to see even more change. And these changes have a bearing on just about all other farming regions. Formerly an all-cotton area, we now have wheat growers who make 40 bushels per acre. Our 100-bushel corn club grows bigger at each harvest. The highest farm yield, authenticated by Clemson College last year, was 227.4 bushels of dry corn per acre. Thirty years ago we didn't have a packing plant. Now we have close to a dozen in South Carolina and many dotted over the other old cotton states. Poultry used to be raised by the hen for home use only. Now, the greatest broiler region on earth is to be found in this area, centering at Gainesville, Georgia.

From a deficit area in bottled milk, we have become a self-sufficient area, and are getting in the manufactured milk business on these lands that turned from cotton. Hogs are coming in pig parlors, and I've seen them hogging down corn until the next crop came in. These things have meaning not only here but in all farming areas in the country.

Last year the total cotton acreage in the country was the least since 1878, when 13,539,000 acres turned out 5,074,000 bales, for a yield of 167.5 pounds per acre. Last year the cotton acreage was 13,561,000 acres, from which 11,010,000 bales were harvested, for a yield of 390 pounds of lint per acre. Over twice as many bales from approximately the same acreage. Progress for sure! But all is not well yet with cotton in the Old Belt to the East. And unless irrigation, some new and better insect control, or something else enters

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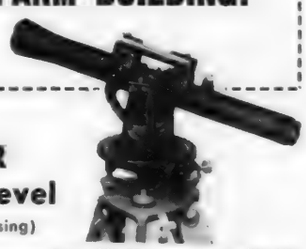

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the picture, we can look to see the acreage continue its westward trek.

We still have many cotton areas in the East that can't be fully mechanized nor where yields can be secured comparable to these in the West. Irrigation in parts of Arkansas, Mississippi, Texas, and Missouri is changing the yield picture of cotton in those states. Experiments and a few farm trials in South Carolina and Georgia show the same thing can happen here. Just last year the cotton yield here at Clemson College was more than doubled with supplementary irrigation. Maybe it will prove to be the means with which many farms in the Old Belt will continue to grow profitable cotton.

At its peak, cotton occupied 43,232,000 acres in this country. That was in 1929. That year the average yield was 164.2 pounds of lint per acre, for a total production of 14,825,000 bales. The acreage had been rather stabilized at about 33,000,000 just before the weevil came to our area. But its inroads made more acres needed to meet fixed costs, and it looked like a battle to the death for awhile. More cotton acres, cheap cotton, and heavy insect damage! We couldn't turn it loose—we had a bear by the tail, and there was nothing else ready to catch on to.

But time seems to heal all things. And then, too, remember what was written on that blackboard, "Nothing is so constant as change." That cotton situation changed too, and is still changing. I know a plantation whose normal set-up was 60 mules and 60 poorly fed, clothed, and housed plowboys before this great change started taking place. First, the labor started leaving and the owner reluctantly put in one tractor. Soon he put in another, and another. Now he has four four-row outfits with four well-paid and well-housed tractor drivers. Before, the women and children were often needed in the field. Now the wives take care of pleasant homes and the children are in school where they belong.

To be sure, there have been many ups and downs in this great transition. Mostly downs. As cotton's empire crumbled, hardship reached the point of want and nakedness. People left, houses tumbled down, weeds grew in the lanes, and bushes and gullies came to many a field. Today many an old house-place is marked only by a few brickbats, a clump of tenacious shrubbery, or a rich spot in a field of pasture.

But out of all of these pains of change, the golden promise of good is now to be seen in the land. With crops plus livestock, a diversified use of natural resources, and a goodly and growing infiltration of rural industries, this Southeast is fast building a democratic economic system where cotton was once king.

THE AUTHOR: J. M. Eleazer is no stranger to readers of THE FARM QUARTERLY. In addition to his many contributions to this magazine, he is the author of two books, "A Dutch Fork Farm Boy," a group of tales from his farm boyhood, and "Our Land Is Our Life," an introduction to agriculture. He is also information specialist at Clemson Agricultural College.

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JIM AVERY'S BIG OXEN

(*Continued from page* 41)

load. Jim had trouble in stopping them, as they were headed for the barn, and it was feeding time.

After the round of the fairs was over, Teddy and Mack went back to the yoke and worked regularly on Jim's farm.

When they were 12 years old Jim found Teddy dead one morning in his stall, victim of a probable heart attack. Mack made the circuit alone for three years, but when he was 15 he began to have trouble in getting around, and Jim sent him to Bellows Falls to be slaughtered. He dressed out 3,300 pounds of fine tender meat. His hide, as soft and thin as a young steer's, weighed 190 pounds. Francis Avery took Mack on his last ride. Jim was getting old too, and he had a good deal of affection for the old ox.

People often asked Jim how he had grown the biggest cattle in the world. He'd always smile and change the subject. The only other person who might have known the secret was his old driver, Sandy Underwood, but Sandy wouldn't talk either.

Dr. Shaw may have a clue to Jim's feeding. He explains it this way:

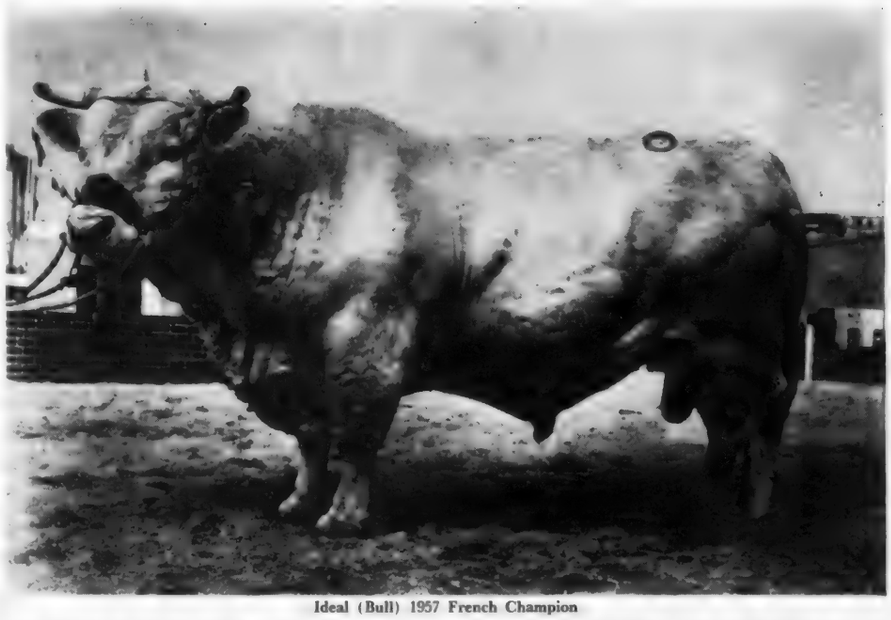
"First, Jim Avery had very little education according to accepted standards, but he was a very smart man, a keen observer, and a hustler. His hobby was fine-looking livestock, especially working oxen. He made a fortune in the lumber business which started as a sideline on his farm, therefore he could afford to blow a little money on his hobby. He owned a herd of 35 or 40 milking cows, the source of most of the income from his farm.

"Second, he operated in a period when there was practically nothing known about feeding as we know it today. Therefore, he could not have gotten any outside information. In other words, he had to figure it all out himself and use the feeds *available on his own farm.*

"Third, comes the question, 'What feed was he producing on his farm that could stimulate tremendous growth and isn't ordinarily used as a feed for oxen?' The answer quite obviously is MILK. We all know that the average ox won't drink milk if he can get water. I believe Jim withheld water from them until they were glad to drink anything that was wet. After they had aquired the taste for milk I believe that was the only thing they were allowed to drink during their growing period. I expect he started with skim milk and later when he saw how well they were doing he changed to whole milk. He apparently fed them milk until they were full grown. He himself said, 'An ox will continue to grow until he is nine years old if you feed him what it takes to grow on.' "

Before and since the time of Mack and Teddy there have been various claimants for the title "Biggest Ox in The World." The famous Lincolnshire Ox, shown throughout England in the 17th century, was said to have measured 12 feet from head to rump. A few years ago Lon Wooley of Friendship, Indiana, claimed his two cattle were the biggest in the world. Mr. Wooley kept them around because he became attached to them as calves and regarded them as little less than brothers. He never had them weighed, but experts at guessing placed them around 3,500 pounds. Charles L. Acree, who operates the Fabulous Farm at Lake Wales, Florida, has made a strenuous effort to obtain the largest bovine in the USA. His best animal weighs a trifle over 3,900, considerably under Mack's weight, champion in 1900, and champion today.

EDITOR'S NOTE: The research data for this article was supplied by Dr. R. N. Shaw, of Shrewsbury, Mass. Dr. Shaw, as a boy, was a neighbor of Jim Avery and knew his cattle well. He is now a practicing veterinarian at Shrewsbury. The hand bill and the photographs are from among his collection.



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4 CROP IRRIGATION

(*Continued from page* 55)

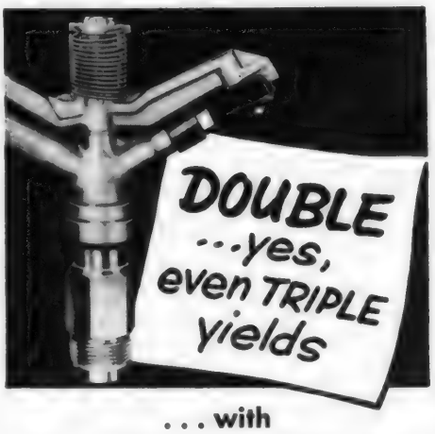
bacco, on my soil, 2 feet deep is about right. Soaking the soil to 1½ feet deep for strawberries reaches the main root zone. Raspberries go deeper, to 3 feet, and for alfalfa, I like to get the water down to 4 feet."

Signs of Thirst

How do you know when to irrigate? Yellowing and leaf curl are obvious drouth signals. "Tobacco fires overnight," Gaines said. "You've got to irrigate fast to prevent a lot of damage. Waiting for leaf yellowing may be too late."

Experienced irrigation operators say, "Watch the soil moisture, not the clouds in the sky." Some forget the weather reports and assume it is not going to rain. The risk depends on the crop. Among vegetable growers, separate crops are treated according to their reaction to excessive water. Cabbage is usually irrigated whether or not a rain is likely. Excess water doesn't hurt it. A good rain after irrigation on nearly mature potatoes often ruins the crop. They rot before digging equipment can get on the field. Good surface and subsoil drainage lessens the risk.

"There's nothing complicated about it," said Pete Gaines. "The engineer who lays out your irrigation system will give you the facts you need to know. He'll recommend a pump to put on the proper amount of water and the depth to irri-



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gate your crops. He'll be on hand for your first shot. From then on, good common sense will guide you. Any farmer knows when his crops need a good rain. That's the time to irrigate. Don't put it off 'till the crop suffers."

Spring Work

Four years ago there were very few sizeable irrigation outfits in northern Kentucky. It was a dry year. Tobacco suffered. Custom irrigators demanded, and got, $50 an acre per shot, regardless of the amount of water applied, which seldom exceeded 2 or 3 inches. Pete Gaines, with 50 acres of firing tobacco that year, felt the money might better be made as a down payment on his own outfit, which had already been designed on paper. To keep from biting off too big a chunk at once, he rented a pump and engine unit, but bought the other components, including medium coverage sprinklers. It was put into working order in time to save his crop from being a complete loss. The second year, convinced of the advantages of irrigation, he put $2600 into a 186-horsepower gas engine and pump unit, capable of greater pressures. This opened the way to his use of giant sprinklers.

Irrigation at Riverview Farms doesn't wait for hot weather. Tobacco seed beds get the first, trial-run shots in spring. These beds, shaded by cotton canvas, are planted in March in sterilized soil. The irrigation equipment is gotten into working order by light sprinkling of the beds whenever the soil becomes crusted. During one sprinkling, the beds are given 5 pounds of ammonium nitrate per 100 square yards, applied through a by-pass in the lateral pipe.

In late April, with the showers subsiding, the berries generally need irrigating. "Berries on our soil wouldn't pay if we didn't water them," Gaines said. First are the strawberries, 6 to 12 acres of them. While the berries are forming, they get shallow but frequent soakings, 6 to 10 inches deep, primarily to keep the surface moist. Berry size and quality are improved, with shriveled, spotted "monkey-faced" berries minimized. A fine mist nozzle prevents spray injury. At picking time in May, yields average 175 crates, a profitable average, though no record. Unirrigated berries in Kentucky average 60 crates per acre. Gaines is awaiting a dry spring. A good yield of strawberries when non-irrigators have none, could pay for the complete irrigation outfit.

As with strawberries, raspberries were added to give the irrigation equipment extra duty. The raspberries come on just after the strawberry crop, with their moisture and labor needs in sequence. In May or earlier, the raspberries get a deep watering, if needed. Last year they took two sprinklings, one of 3 inches of water per acre. Two giant sprinklers cover the 2½-acre patch. Drop size is less important, for raspberries are not so subject to spray damage. In late May, with the berries retailed at a roadside stand or wholesaled to chain groceries or a nearby cannery, labor and transplanters and irrigation pipe are switched back to tobacco.

Tobacco is King

In the Burley Belt, farmers chew, smoke and think tobacco. The work is little mechanized. Traditionally a crop that takes a strong back and a weak mind, tobacco growing demands long hours of hand work in the July and August sun and longer hours in the stripping sheds in winter. Returns of $1,000 an acre are not uncommon. As a result, entire families pitch in, down to the youngest able to tote a water jug, ride the "setter," or hand-worm the crop. School schedules in some areas are arranged so children can help. Two or three acres of tobacco are all the crop an average family wants to tackle. Tobacco acreage allotments are the main tenant incentive. In Kentucky, the average allotment or "base" per farm is under half an acre. Controls are rigid. ACS workers measure planted allotments down to the last plant in an irregular hillside row. Overplanting brings stiff penalties unless excess plants are destroyed.

With a 37-acre tobacco "base" this year, Riverview Farms need a lot of help. Their allotment was reduced from 99 acres awhile back to 50 acres 4 years ago, and now to 37, for though

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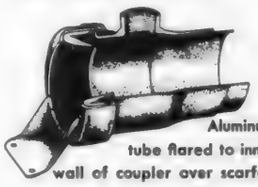

Aluminum tube flared to inner wall of coupler over scarfed ring. Positive adherence. Minimum friction loss.

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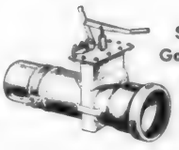
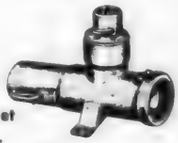


Straight Line Gate Valves—two latches.



Vertical Outlet Tee Valves—Male to female ends—or two female ends to eliminate a coupler.

Side Outlet Tees—with or without gate valve—two latches for laying right or left.

Line Breaker—telescopes 4 inches.

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cigarette consumption has grown by leaps and bounds, yields have shot up through heavy fertilization. A ton of fertilizer per acre is fairly typical of the better growers.

Seven tenant families, plus several hired hands, work at Riverview Farms. Tenancy contracts are unique. Each tenant is given a house, with 3 acres of tobacco on half shares. Hand work in the tobacco is the family's responsibilty. Gaines supplies the plants at cost, provides the machine work at actual cost and splits the cost of irrigation with the tenant. With tobacco selling at over 60 cents a pound, it takes very little extra poundage to benefit the tenant. He assigns work where it is needed, with a record kept of exchange labor between the tenants.

Each tenant is guaranteed year 'round work at daily wages when he is not busy on his own or another tenant's tobacco. All other enterprises, like the tobacco acreage over and above that contracted for by the tenants, are operated by the farm, unshared.

Irrigating the Weed

Field-planted tobacco responds most favorably to irrigation at three periods: where first set, in the early bloom stage, and just before harvest. Along the Ohio River Valley, farmers in Indiana and Kentucky transplant in late May or early June, frequently under drouthy conditions. The ground is sometimes irrigated prior to setting. At times the plants are first set, then irrigated as soon as the sun goes down, for spraying wilted plants in a hot sun kills them. Irrigated plants, usually not given over a half inch of water per acre, take hold at once without shock.

Unless the season is excessively dry, Gaines does not use either method. He prefers to give a light sprinkling to the plants in the seed beds prior to transplanting. It allows them to be pulled easily, with no damage to the feeder roots. In his opinion, the method is as effective as the others, while not encouraging weed growth in the fields.

During the early growth period, tobacco does better if the soil is on the dry side. Excess water is very injurious. More water is needed during the bloom stage, which occurs in August with its usual spells of dryness. Then the field moisture must be kept up to near field capacity for high yields and top-quality tobacco. During harvest, light irrigations avoid premature firing and can improve the body of tobacco.

Russell Hunt, an authority on tobacco culture from the University of Kentucky at Lexington, believes that irrigation tends to increase the percentage of smoking grades of tobacco, which bring high prices. "Tobacco is naturally a fast-growing crop," he says. "It must be kept growing at all times. Drouth or anything else that slows it down makes it heavy-bodied with less desirable aroma and increased nicotine. Lightness of leaf, along with high poundage per acre, and low nicotine, is our goal. Irrigation keeps tobacco growing and minimizes the nicotine content. In most of the Burley Belt, normal total rainfall is enough to grow a good crop of tobacco, but the timing is seldom right. August, when tobacco nears maturity, is the critical month. One of the biggest jobs in producing tobacco is suckering. Each leaf has a sucker and these must be removed by hand before the plant will mature and produce quality tobacco. Irrigation gives better control by timing available water so suckering is limited. Early maturity, with eventual better curing, can be gained. But if you irrigate well late in the summer and then get a heavy rain soon after, you may get scalding with leaf drop caused by fungi from moist soil. That's why it is important to choose upright-growing types of tobacco for irrigation, the drooping types touch the ground with their leaves and are contaminated."

To Gaines, reasonable poundage, with top quality and early maturity, pays off. Last year his tobacco sold on early markets at or near the highest average. In yield, 4 acres averaged 2533 pounds, the other acreage around 1900 pounds.

When soil moisture checks show the need for tobacco irrigation, the irrigation crew at Riverside Farms works around the clock. There is no stopping until every acre is covered. A man waits at the two-way radio beside the pump at the river. Gaines, in a truck also equipped with a two-way radio, tows the trailer that carries the lateral pipes. Communication is instantaneous

while pipe is being moved and for valve control during pressure changes and trouble shooting. Two men break down the pipe at the couplings, two others load and move and drop it in the new location where the first men recouple it. Three giant sprinklers cover a 3-acre setting. At .4 inch an hour, one inch, a normal sprinkling, takes 2½ hours. Moving the pipe on the trailer to a new setting takes another hour or so.

The tobacco cannot readily be planted for the necessary turning room to use either skid or wheeled type pipe moving system. Tobacco won't stand rough treatment. To avoid injury to it, Gaines had a two-wheeled trailer made. It is 28 feet long to carry the 30-foot pipe links. Built on the front rather than the rear axle of an old car, it turns short like a fire ladder wagon.

The rows are planted in blocks 105 feet long, with 12-foot unplanted strips between. The laterals and sprinklers are set up in these strips. The sprinklers cover more than 300-foot diameters, but a 40 per cent overlap is required. This spacing uniformly covers the 105 feet to each side of the sprinklers.

Multipurpose Tool

By using $20,000 in equipment for irrigating only his tobacco, Gaines had over $500 invested per acre. Spreading the equipment, which can reach 400 acres, to other crops has greatly reduced his annual fixed costs of depreciation, interest and taxes. The added strawberry and raspberry crops helped profits, but the added acreage use was insignificant. Tomatoes, tried one year, conflicted with tobacco. Pasture irrigation has just about paid its way, so it is resorted to only when very necessary. Even though he now irrigates his alfalfa-brome hay, Gaines still cuts it three times as he did before irrigation. He prefers bigger cuttings against an extra, or fourth cutting. In his experience, irrigation is most effective with the last cutting.

"The surprise crop to us was soy-sorgo silage," said Pete Gaines. "We tried it for the first time last year. We never get enough hay and silage for our 185 Jerseys. They get our best roughage. We keep more than 100 head of beef cattle to utilize

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our rained-on hay and common silage. Last year we tried the soybean and sorgo combination for silage. The first cutting was terrific, over 18 tons per acre. Then we irrigated about a third of the field. The beans kept growing and the sorgo suckers never stopped. The sucker crop made almost as much tonnage as the first where it was irrigated, with the unirrigated acres doing about half as much."

August tobacco and September forage irrigation are not the windup. There's still a heavy irrigation of the strawberries in October. "When the crowns are forming in the fall is the time for deep drenching of strawberries," Gaines believes. "That's the time to feed the roots. A fine spray isn't necessary then. But plenty of water gives the plants a good growth before winter and really shows up at harvest. Our next extension of the irrigating season will probably be to try frost protection on the berries, though I hope we aren't forced into it."

FOGGED HOGS

(*Continued from page* 29)

three closed sides and a roof of galvanized metal. The side facing the feeding area is open. At one end of the shelter he has his 12-foot length of lawn soaker fastened to the underside of the roof. It is placed about 3 feet inside the building and sprays directly on the hogs. All told the feeding floor and shelter cost $1000.

This feeding area is also equipped with an underground electric line, underground water line, electrically heated water basins, self feeder, and an automatic hog oiler. During the cold weather he drops a 30-inch fine mesh screen closing the top half of the shelter's open side. This lets the sun in, but keeps the wind out.

Pointing to the lawn soaker, which is now a permanent installation, Hockaden said, "When the weather gets hot I just connect it to the hose, turn on the faucet so a trickle comes out, and the hogs take a cooling shower whenever they like. The spray is so fine it looks like a fog. The hogs go under the spray like trained seals with their noses skyward and their mouths open. I was even surprised myself when I found it uses less than two gallons of water an hour. This little dab of water drains off the floor which is pitched away from the shelter."

Another Corn Belt farmer, Milo Banta, has a 22-foot by 30-foot Pig Parlor at Lebanon, Ohio, where he uses another type of fogging device. A pair of ⅜-inch galvanized pipes drop from an overhead water line in the parlor's shelter. These vertical pipes extend to within 5 feet of the floor, and are arranged so their sprays will cover the lower third of the sloped, paved feeding area. The flat nozzles used for fogging have a grooved disk inside the

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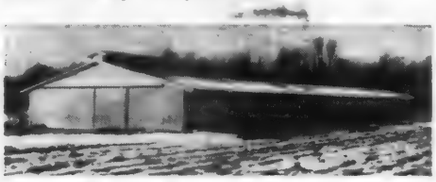

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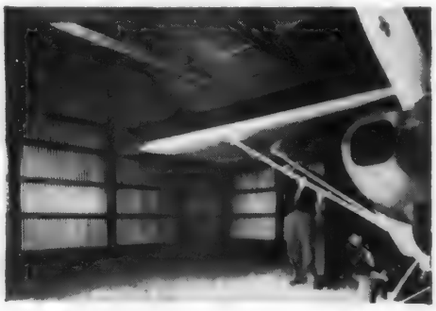

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spray head, similar to the nozzles on many insecticide sprayers.

Last summer, Banta put 50 pigs on the floor and kept accurate records on the whole operation. The pigs weighed 87 pounds going into the parlor and came out 51 days later at 206 pounds—an average gain of 2¼ pounds per day. As Banta put it, "I'd recommend this spraying to anybody. It uses less than two gallons of water an hour and it sure paid off last summer which was a hot one."

One large hog raiser near Foster, Ohio, uses another simple type of fogging device in hot weather. He uses a three-foot vertical pipe with a plastic nozzle that will adjust to a fine fog. The nozzle is tilted so the spray lifts about 15 feet in the air and covers an area of 200 square feet. The result: cooled hogs.

Kansas Hogs and Southern Hogs

Frank Wilson of the Maurer-Neuer Packing Company, and Harold Walker, FFA advisor, both of Arkansas City, Kansas, are keenly interested in the peculiarities of hog raising in that section of the country. These men are following a program advocated by the Staley Milling Company of Kansas City, Missouri, to encourage hog farming in this grain and cattle region. The ever-present wind in the area makes is necessary to place nozzles 40 inches from the floor, or the spray is blown away. Wilson stressed the value of spraying by citing an improved conception rate in his herd since installing a spraying system. As he said, "That was the only way I could get any gilts bred. When it got too hot, the gilts wouldn't stand and the boar wouldn't service. To stay in this kind of year-'round pig business we have here, it is absolutely necessary that we be able to breed at any time of the year."

Sixty-sow herds are not common in Mississippi, but S. T. Dendy of Vardaman has developed one in short order. Less than five years ago he had only nine bred gilts. To keep his hogs cool, he suspends a perforated hose over the feeding floor. Heat-reflective aluminum sheeting is used for both roofs and sidings on his pole-frame buildings.

In the pecan country of Williston, South Carolina, T. R. Pender also hangs a perforated hose over his feeding floors. In addition, he often sets up a slow speed fan to help produce a fine fog. Another

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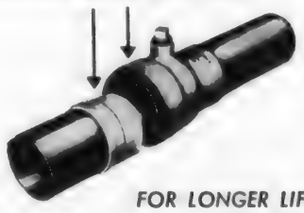

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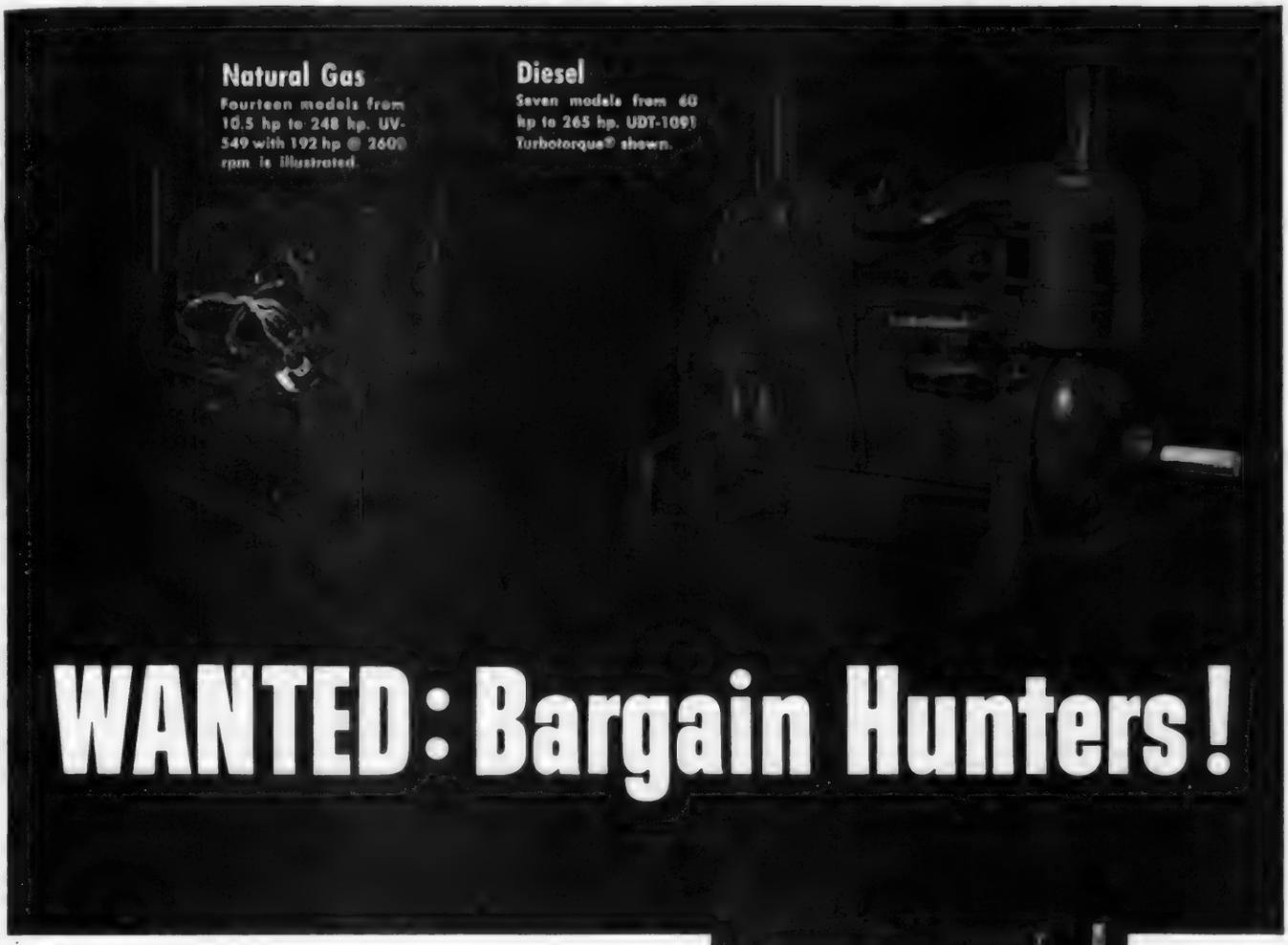

Natural Gas
Fourteen models from 10.5 hp to 248 hp. UV-549 with 192 hp @ 2600 rpm is illustrated.

Diesel
Seven models from 60 hp to 265 hp. UDT-1091 Turbotorque® shown.

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Fourteen models from 16.6 hp UC-60 shown to 222 hp.

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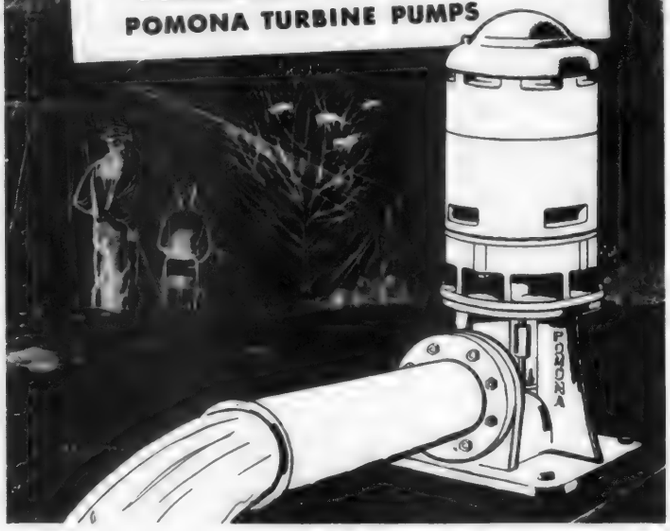

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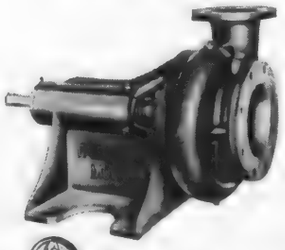

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innovation of Pender's is the use of a ¾-inch perforated water pipe above the ridge roll of his metal-roofed buildings. This artificial rain reduces the inside temperature about 10 degrees.

Air Conditioners

Viewers of Western TV shows will associate Wyatt Earp and "Bat" Masterson with a town in western Kansas originally called Buffalo City, now Dodge City. Dodge is not the same town it was in 1876, and neither is the agriculture of the area. Until two years ago Everett Tenbrink, who farms 1300 acres near the town, had no hogs. Today he runs 40 sows in addition to his grain operation. In this area of high summer temperatures, low humidity, and high winds, the climatic environment and methods of cooling hogs differ from those in the Corn Belt.

Tenbrink uses an evaporative type air conditioning system to make his farrowing building more comfortable in hot weather. With this air conditioning, water is dripped into pads of excelsior and a fan draws air through them. The rapid evaporation cools the air. In humid regions the atmosphere is already heavy with moisture, the rate of evaporation is much slower, and cooling by this method is inefficient.

Two entirely different approaches to swine cooling have been tried by a big central Indiana farm. Conner Prairie Farm, Noblesville, first installed a large heat pump which acted as heater in winter and cooler in summer. It served a 26 by 50 foot wing in a farrowing barn. But blowing dust troubled the sows and newborn pigs, and the system did not supply enough fresh air. Considerable air replacement is needed in a farrowing barn which is full of pigs 24 hours a day.

The second attempt at cooling was more successful. An idea from the work of the late Dr. Samuel Brody at the University of Missouri was borrowed and adapted. Brody had shown a refrigerated plate near the nose of a cow cools the whole animal. Conner Prairie, with this in mind, installed a duct to each of fifteen farrowing stalls. These pipes end at the sow's snout, and cold air flows from them at a very low rate. Don Fisher, the hog manager, calls them "snifters." The sow draws a breath of cool air into her lungs inside the layer of built-in insulation her fat provides. She cools the inside—where it counts—and the outside air temperature is less critical.

As Fisher describes it, "Originally we cooled the whole barn, which took the equivalent of a six-ton air conditioning unit. Now we supply much less cold air directly to the sow's respiratory system. The amount of cooling could now be furnished by a ¾-ton unit. The whole set-up would cost about $500." The snifters produce no drafts and no dust, as the flow from them is about breathing rate.

Throughout the Corn Belt thousands of home-engineered shades and shelters have been devised by hog men. All types of protective shades must permit good air circulation. Many are dual-purpose winter shelters and summer shades. Others are portable wood or pipe frame structures on skids that require only a home-made roof. The two most popular types of roofing for hog shelters are thatched straw and either galvanized steel or aluminum. However, there are dozens of other types such as plain boards, asphalt shingles, and burlap sacks. The use of either white or aluminum paint on metal and wood is quite practical as both possess heat-reflective qualities.

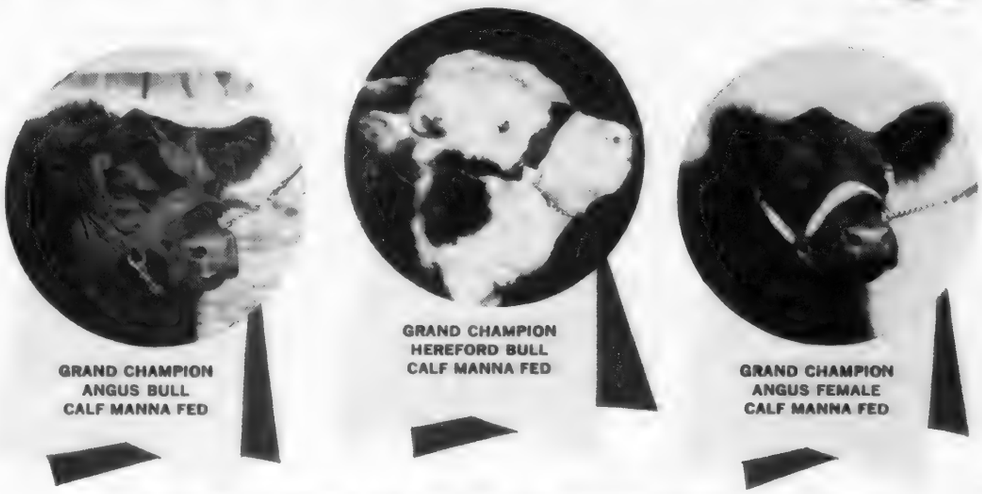
Thatched roofing is low-cost, easy to construct and is porous to permit hot air to rise under it and escape. Galvanized metal and aluminum are both popular as roofing and siding materials. Aluminum is gaining in popularity because of its high-reflective quality and light weight. Many hog farmers fasten a layer of insulation material to the underside of these metal sheets to further aid the cooling effect.

Keep 'Em Cool

Every good hog man will agree the old mud hog wallow was a breeding ground for disease. But it was popular with hogs as a place to cool off. Today the wallow has been replaced by the bath tub. Some pork producers have concrete tubs so their hogs can take a cool dip when the notion arises. Several companies

CALF MANNA FED CHAMPIONS MAKE 29 TRIPS TO THE WINNERS CIRCLE AT CHICAGO'S 1957 INTERNATIONAL

Calf Manna



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Champion sheep accounted for 3 other trips to the "winners circle." Pat Meade's Champion Shorthorn steer, Rowdy, was another Calf Manna fed winner. This steer later became Grand Champion steer at San Antonio.

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Tolan Farms, Pleasant Plains, Ill.	Angus	Best 10 Head, Jr. and Reserve Gr. Ch. Female, Sr. Bull Calf, Jr. Ch. Bull, Get of Sire, Jr. Get of Sire
Kickapoo Farms, Kenosha, Wisc.	Shorthorn	Gr. Champion Female, Best 10 Head, Summer Yearling Bull, Summer Yearling Female, Pair of Females, Pair of Yearlings, Get of Sire
Roy and Gerald Clodfelter, Greencastle, Ind.	Polled Shorthorn	Best 10 Head, Sr. Champion Bull, Jr. Heifer

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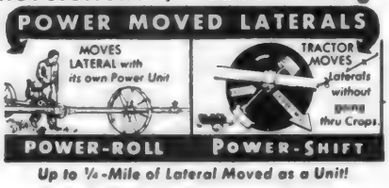

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manufacture a metal bath tub for use with either confined or open feeding. It is best to provide shade over the bathing area.

Hog men who have a fogging system agree on several points. First, have at least part of the spray under shelter. Second, do not spray the entire area. Hogs enjoy the spray, but are like people at a swimming pool. They like to get wet, walk around for awhile, and then rest a spell in the shade. A third point is this: use a fine foggy spray. Methods that call for a heavy output of water are a waste of the precious liquid, usually cause mess and cuss words.

Transporting hogs during hot weather is another problem that has plagued farmers and truckers for years. Soaking hogs with a hose before loading and providing moist sand on the truck bed are good practices. Some long-distance livestock trucks are equipped with spraying devices to cool hogs in transit. Perforated pipes are suspended above each deck of the truck. Some operate on a gravity feed, others operate under pressure. One trucker who hauls hogs from the Middle West to Eastern packers reduced his hot-weather losses 80 per cent by installing a spraying system. The USDA has published a booklet giving results of in-transit spraying tests, as well as a detailed description of the installation.

There's a popular expression—"Keep a cool head." To this we might add, "Keep a cool hog. It makes cents."

THE AUTHOR: John F. Hughes was born in Cincinnati, but spent his summers on his uncle's farm and then majored in animal husbandry at Ohio State University. His job as a hog buyer for the E. Kahn Sons Packing Company keeps him in close touch with hog feeders and their problems.

WILL A GRAIN DRYER PAY?

(*Continued from page* 61)

let it run automatically while he plowed."

Out in Nebraska, near Ames, Sam Chudomelka has his drying operation on wheels so he can move it around to his own storage bins and down to his neighbors', too, if they need a lift with their drying. He farms 440 acres and 220 of it is in corn, another 150 acres in milo. On his wheat last year he was doing a good job of combining, even though it was overripe. It was yielding 35 bushels to the acre until a summer thunderstorm hit it, then down she went. When it had dried out enough to get in the field and start combining again, the yield was 17 bushels an acre and it took twice as long to pick it up.

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"Right then is when I started planning for a dryer for fall," Chudomelka said. "We got together with our neighbors who had dryers and we talked to salesmen. I liked the idea of the recirculating method for drying our milo and corn and we ended up buying a Habco '400'."

We asked Chudomelka:

How much grain did you dry last year?

Chudomelka: "We ran 20,000 bushels of milo and corn through our dryer last fall and winter. We did our own and quite a bit for our neighbors."

On the custom work, how did you charge?

Chudomelka: "We made it a straight $30 a batch for drying shelled corn or milo. Our batches ran 375 to 400 bushels. Most of the corn averaged out right at 25 per cent moisture when it went in and we took it down to approximately 13 per cent. We figure dryer fuel at about 1.2 cents a bushel, using 11-cents-a-gallon propane, depreciation and repairs at 2.5 cents a bushel on the dryer, depreciation and fuel for the tractor that operates the dryer at ½ a cent per bushel, and labor—that's me—at one cent a bushel. Our average cost was 5.2 cents a bushel, which gave us a net of nearly 3 cents a bushel after costs."

Could you use a bigger dryer?

Chudomelka: "No, this one is big enough and about all you want to pull around on the road. It turns out a 375-bushel batch in about 2 hours and 20 minutes, counting the loading and unloading time. The 4 million BTU heat output of the dryer gives just about as fast a drying action as you can want except in zero weather. And then I don't want to be drying grain, anyhow."

Do you have any reason to feel that the moving of grain in the recirculating dryer damages the grain?

Chudomelka: "No, both my son, Armand, and son-in-law, Dwaine Anderson who farm with me, have watched the grain before and after drying. We feel that most of the grain damage comes from the picker-sheller. Damaged grain is easier to see after drying because the white powder of the undercoat shows up when the grain kernel gets dry."

How do you know when you've dried each batch of grain long enough?

Chudomelka: "We've tested all the grain before we dry it. It's important to be able to check the grain quickly for its moisture content all the way through the drying and storing program. We're using a Radson tester."

Have you had any trouble keeping this machinery running?

Chudomelka: "Very little. Of course, you have to drive it with a husky tractor. Our International '400' Diesel does a good job. We sheared a few pins on the main drive shaft of the dryer until we put in a slip clutch. It's important to hit all the grease fittings with the gun every morning, of course, because there is bound to be heat around a big furnace like this."

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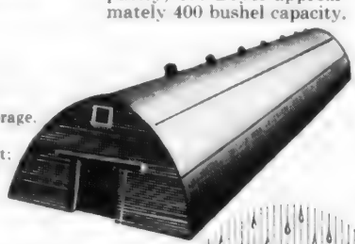

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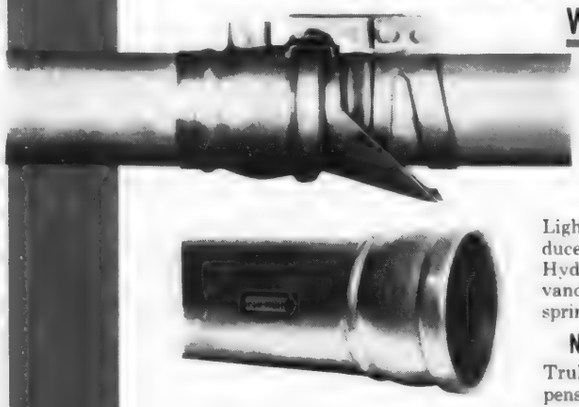

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Chudomelka: "Yes, it's going to pace our harvesting. We plan to combine wheat about 4 to 5 days ahead of our usual time. Corn and milo will be binned before we get into the bad weather. I don't see any reason why our yields shouldn't show a 10 per cent increase by picking at the right time and eliminating the loss all the way along the line."

The Custom Operator

George Gebhard raises 60 acres of corn just west of Stryker, Ohio. In the middle of the summer last year, he could see what was coming. The corn fields looked more like a rice operation. The investment required for a grain dryer was too big for his own operation, but he knew there would be custom drying to do in his neighborhood.

"We were in an ideal spot for a gas dryer because a Texas natural gas pipeline runs right along in front of my farm," said Gebhard.

We asked Gebhard these questions about his dryer operation:

How did you pick your dryer?

Gebhard: "Well, I studied the ads and the literature but I wanted an upright machine so it would work into my gambrel roof barn and so I could use the elevator set-up I already had. I ended up buying the Campbell NB-4 dryer, which is rated at 350 bushels. It's a four-section dryer and if I need more capacity, I can add on another section later. With good clean corn, we can get 350 bushels in it for a batch of drying. If the corn has trash in it, it runs about 330 bushels for a batch."

How much do you figure you have in the installation?

Gebhard: "We know exactly what it cost. It was $4000 unassembled, f.o.b. Des Moines. We spent $291 setting it up. We were just pouring the concrete slabs for the exercise yards of our new hog houses when the dryer arrived, so I had the truck pull over and pour the slab that we set the dryer on."

What "bugs" have you found in your dryer?

Gebhard: "We had one problem with the protector relay that feeds current into the sparkplug that lights the gas. The relay button kept popping out. We checked all of our wiring and couldn't find anything and then we saw that someone had been careless with a paint gun and the insulator that carried the wire for the current right up to the gas burner was covered with orange paint. In the morning when this was moist, it provided a perfect track for the electricity to short out. We used a little emery paper on the insulator and she's run good ever since."

How many people does it take to handle the drying operation?

Gebhard: "I handle the farm myself and I can handle the dryer, too. I've got a nice set-up of elevators and corn augers to take care of all the handling of the grain. The first job I had was my own corn. I hired a neighbor with a picker-sheller and we brought the corn in and ran it through the dryer. This gave me a good chance to practice because my corn was going to go mostly for my own hogs. Naturally, several neighbors stopped by to see how the dryer worked. They asked me if I would dry their corn if they brought it over and I said I would after I got my own corn under control. I am able to keep good cost records because the gas company put in a complete gas installation for the dryer with its own meter. Checking the run on the gas meter, I found that the gas for a batch of corn costs between $3 and $4 for the 320 to 350 bushels. The electricity I figure from the additional amount I pay over last year's bill in the same month, and it is about $1.50 for a batch of corn."

What do you charge for drying?

Gebhard: "I charge one cent a point of moisture on a bushel of shelled corn. That means if a neighbor brings me 25 per cent moisture corn and I take it down to 15 per cent, they pay 10 cents a bushel. They bring the corn in their own trucks and dump it into my auger, which carries it to the grain elevator and up to the top of the barn. From there, it is carried horizontally by an auger to the dryer. The farmer who comes along with the load helps move the equipment around and the grain is handled all the way by electrically operated equipment.

"You have to know what the moisture content of the grain is

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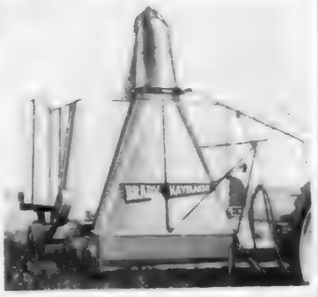

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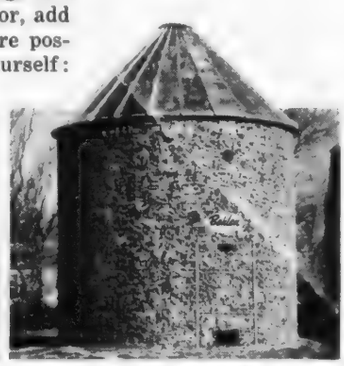

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when you start and finish. So I bought a Steinlite Tester."

Would you run through drying a batch of corn and give us the procedure?

Gebhard: "Well, here are the figures on a batch I ran for Enoch Clark of the Farmers' Elevator in Stryker. I have been doing a lot of work for him on a custom basis because he doesn't like to store wet grain any more than I do. He sends his truck out and we dry the corn and then he takes it right on back to the elevator. This particular truckload was 18,150 lbs. of corn and it tested 27 per cent moisture when it left the elevator. I ran it down to 15½ per cent moisture and that took 3,850 cubic feet of gas. The gas cost me just 9 cents a hundred cubic feet so that would be $3.42 for the gas on the batch, which was 323 bushels. It took an hour to load the corn into the dryer because my elevator that raises the corn isn't well suited to wet grain. It's a bucket type and should be bigger. Then I let the dryer run for 2 hours. The trick is to shut it off at just the right time and let it coast down to the moisture content you are shooting for. Then I unloaded the dryer and put the corn back in the truck and that took about half an hour. That 323 bushels brought in 11½ cents a bushel for the moisture I took out of it, or $37.14. So you can see after I paid $3.42 for the gas and $1.50 for the electricity, I still had a good profit in the run."

How much corn have you been drying through the winter months, George?

Gebhard: "I have been handling about a truck load of corn a day—and sometimes two—just about every weekday when the weather wasn't too cold."

Enoch Clark tests each load of corn for moisture as it is brought to his elevator.

What depreciation schedule do you set up for your tax return on the dryer?

Gebhard: "We use a 10 per cent schedule which means that without repairs the dryer costs me $1.10 a day; with repairs the cost has averaged out $1.25 a day, so I feel I have made a good buy because it's turned in considerable extra income for

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the farm at a time of year when you normally don't make it."

Natural Air Plus Heat

In contrast to the noise and motion of a batch dryer operation—that farmers like to see—the supplemental heat air-drying system is quiet and undramatic. The humidistat is the electronic brain that controls this type of drying. When the humidity of the natural air blown into the grain bins goes over 55 per cent, the humidistat calls for supplemental heat to be added. The supplemental heat units are set so they shoot the hot air into the air stream picked up by the fan blowing the air into the bins. They are relatively small in terms of BTU's. Last year there were 90,000 BTU and 200,000 BTU heaters available. This year there will be bigger heat units. A 400,000 BTU unit is in the works and will undoubtedly be on the market by harvest time. In addition to the propane-operated supplemental heaters, there will be new oil-burning heaters which will either be direct fired or used in a heat exchanger heater.

Rescuing Wet Corn

Walter Bevier farms 600 acres near Shelby, Ohio. He had 190 acres in corn last year. In September it was so wet he started scouting around on a life-saving operation for his corn. His energy and his luck held out, and on October 15th he

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DRY-O-MATION
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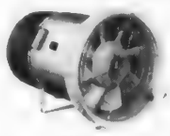

DRYING
Farm Grain Bins with Perforated Floors.

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For Automatic Humidity-Controlled Grain-Drying on the Farm.

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Write for free copy of "YOUR GRAIN IN THE FUTURE". Please mention the type, size and brand of storage equipment you have or in which you are interested.

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New LENNOX Batch Bin
Speeds Crop Drying With

HUGE AIR DELIVERY

At low static pressures

- *Perforated side walls offer maximum 33% free area for air flow*
- *Heat capacity from 500,000 to 4,000,000 Btu's*
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Heat capacity alone is not enough! New Lennox batch bin features huge air delivery for fast, thorough crop drying. "Super 600" gently loads, unloads up to 1500 bu./hr. Available with PTO or electric drive; LP gas or oil fuel. Complete safety controls. Exclusive portable canvas closure keeps heat restricted to bins being used.

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had two 3,500-bushel bins sitting on concrete bases, a 36-inch fan ready to blow air through the corn as it was dropped into the bins.

Here is the way he answered our questions:

How did you decide on a dryer for your wet corn, Walter?

Bevier: "Well, we were in a mess. We had to get bin facilities and we had to get drying facilities ready in a hurry. On my 190 acres of corn, the moisture content was running well over 40 per cent in September. By the time we had a Martin Harvest Hoarder system installed with two 3500-bushel bins set up, the corn was still right at 36 per cent moisture. It was so wet no amount of turning would have kept it from spoiling, once it was picked and shelled."

How did you save the corn last year?

Bevier: "We started the picking and shelling operation just as soon as we had our bins done and we dropped shelled corn in for four days until we had a depth of 3½ feet. The corn was then averaging 35 per cent moisture. We operated the fan only during the daytime during the first two days because that's when we had dry air. Then, we received our supplemental heater, which was a 200,000 BTU model, got it hooked up to the propane, and on the fourth day it started running. From day to day we picked corn and put it in the bins. We could see we needed more heat, so we got another 200,000 BTU heater and put it on the fan. Both heaters ran together for 8 days of continuous operation. After this, only one heater operated for 3 days; then we shut it off, and the fan operated for another day with unheated air."

What moisture content did you end up with after this drying operation?

Bevier: "The moisture content of the corn after the drying was about 9 per cent in the lower part of the bin and up near the top layer we had 15 per cent. By the time we were done harvesting, we had a 7-foot depth of corn, with a total of 4,000 bushels."

How are you going to dry your corn next year?

Bevier: "We're going to be able to start earlier and I expect to have a bigger supplemental heat burner which will operate on oil next year. We've got a high cost propane here in our area and I just

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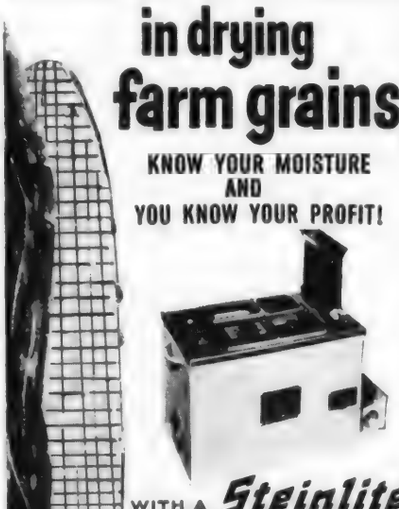

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Whether you dry grain for farm storage—for sale—or custom dry, don't guess at moisture content. Use a Steinlite grain Moisture Tester, the most widely used moisture tester in the world. There's a Steinlite priced to meet your farm drying needs.

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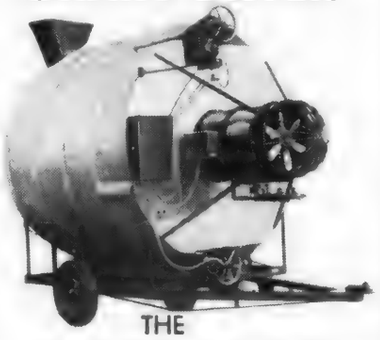

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Check these outstanding features

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- ✓ ADVANCED ENGINEERING—Simplicity of design; **one** push button controls operation.
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can't see buying propane at 19 cents a gallon, which has 90,000 BTU's in it, when I can buy oil for 15 cents a gallon, which has 140,000 BTU's in it."

You say your costs were too high this year. What were they?

Bevier: "Well, we figure we ran the fan for about 400 hours, and the total amount of gas we used was just about 1000 gallons of propane. At a cost of 19 cents a gallon for propane, the total fuel bill was $190. The cost for both power and fuel are about the way I have it written down here:

Power: 5 HP, 400 hours = 2000 Kilowatt-hours
@ 2¢ kwh = $40.00
Cost per bu. = 1.0¢

Fuel: 1000 gals. Propane @ 19¢ = $190.00
For 4000 bushels = 4.8¢ per bu.

Total Cost per Bushel = 5.8¢

"As you can see, this is unusually expensive drying, but the reason was the high cost of propane and also our corn was much wetter than we normally would be putting into a bin. There is no reason why our costs should be more than 3 cents a bushel next year. I'm sold on this method of drying because it was a case of no crop last fall or saving the crop and we did save it even if it did cost us a little extra money."

How much money do you figure you have in the system?

Bevier: "Counting the bin cost, the concrete, the blower and heater, but not my own labor, I have right at $4,000. That gives us 7,000-bushel storage. We ran the fan without heat about once a week during the winter to air the grain out a little."

So that is the cross section on dryers. If you want speed, and mobility, you can get it with a batch dryer. Your tractor, which is the power supply, can be hitched to the dryer and the propane tank hitched on behind. You can move it anywhere.

With the natural air dryer and supplemental heat, you put the grain in storage and dry it there. And you are all set for a winter free of worry, at least about your corn spoiling.

THE CATTLE CYCLE

(*Continued from page* 46)

you find it just takes time to raise a steer. From the time a rancher decides to hold back a heifer calf to enlarge his herd until a steer from her is slaughtered, four or five years have passed, depending on the age at breeding and the type of feeding program. The period of buildup in recent cycles has been 7 to 9 years.

The final stage of the cycle is where old Urban Plunger makes a frantic rush to get into the cattle business and make a killing. This is when the professional cowman gets disgusted. Main Street businessmen jump into the game and bid the price of breeding stock beyond all reason. Young farmers starting in the cattle business are

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by DON GOLAY

President, Farmer Feeder Co., Inc., Cambridge City, Indiana

In July, 1957, we announced the Chore-Boy Herringbone Milking System. The response was amazing. It seemed that this was just what dairymen had been waiting for. As a result, many Chore-Boy Herringbone Systems have been installed throughout United States and Canada.

Reports from users have been most gratifying. They say that they can milk two to three times as fast as before, and more important, the cows seem to like this new way of milking. They milk out better, faster and cleaner and many dairymen report increased milk production. Mr. L. E. Maxfield, Lemax Farm, pure bred Holstein producers of North Hartland, Vt., writes — "We have eliminated stripping entirely and have cut down on mastitis considerably. The cows are giving more milk and they sure like the system."

In October, 1957, we announced the complete Chore-Boy One-Man Milk Production Plant consisting of a prefabricated milking parlor and milk room equipped with a Chore-Boy Herringbone Milking System. These plants have gone through this past severe winter in wonderful shape and have proved that the Chore-Boy Ready-Built Building is warmer, drier and more satisfactory in every way than other types of milking parlors. This new Chore-Boy development enables the dairyman to buy a complete system designed for efficient, economical and sanitary milk production. One company and one dealer assumes complete responsibility for proper operation of the entire system.

In 1957 we also introduced the Chore-Boy Roll-O-Measure which determines the milk production of every cow and the Roll-O-Clean, a spherical glass milk releaser.

All of these Chore-Boy developments, combined with Chore-Boy's low vacuum and master pulsation have put Chore-Boy far ahead in better and faster milking.

Elmer Helgesen and his son Tom, planned and built their milking system with expansion in mind. The Helgesens are presently milking 6 cows on each side but will be milking 10 cows on each side when the herd is increased from 40 to 140 cows.

Mr. Elmer Helgesen, Monticello, Wisc., writes as follows:

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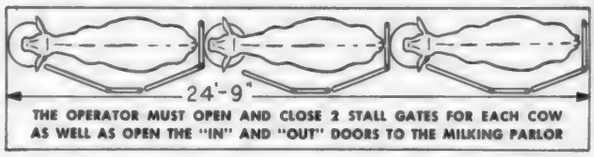
"We installed our Chore-Boy Herringbone Milking System February 18, 1958. The cows were completely adjusted to it in 3 days. One man can now milk our present 40 cow herd in 35 minutes. This job formerly required 1½ hours and two men. We would never go back to our old system. Our cows are now milking out faster and cleaner than before. Our blue test is 9 hours compared to 5½ hours with the other system. The automatic auger feeders save us a lot of time and work. Chore-Boy's low-vacuum milking combined with the Herringbone Parlor make a perfect combination. We are proud of our new Chore-Boy System and visitors are always welcome to come and see it."

With a Herringbone System, one man can handle 6 milker units.
In milking a 40 cow herd there are 56 gate operations at each milking.

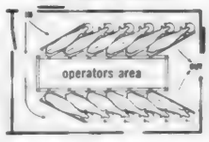


With side-opening stalls, one man can handle 3 milker units.
In milking a 40 cow herd, there are 320 gate operations at each milking.

A CHORE-BOY HERRINGBONE SYSTEM Saves Time And Enables You To Milk Cows Faster And Better

Chore-Boy also manufactures side-opening and walk-thru milking stalls — and they are good stalls. We believe, however, that we would be remiss in our duty to dairymen if we did not emphasize the many advantages of the Herringbone System over other parlor stalls. The diagram above shows that 6 Herringbone stalls will fit into less space than 3 side-opening stalls. This means a saving on the cost of the building and the stalls — and much less walking for the operator. The cows are fed and milked in batches. The Herringbone System is well adapted for small herds as well as large ones.

THE OPERATOR IS ALWAYS WITHIN 3 FEET OF THE NEXT COW'S UDDER.



COWS ARE "ANGLE-PARKED"— THEY ENTER AND LEAVE THE PARLOR IN GROUPS.

Only CHORE-BOY Can Provide Complete HERRINGBONE MILKING SYSTEMS

The Farmer Feeder Company has applied for basic patents on the Chore-Boy Herringbone System. Until these patents are granted, it is possible that other herringbone stalls may appear on the market. It pays to keep in mind that copies are seldom as good as the original. Good engineering has been built into Chore-Boy Herringbone Stalls to assure proper cow positioning and feeding. Remember, Chore-Boy is the only organization that provides the complete system — thus one dealer is responsible for the satisfactory operation of the stalls and the pipeline milking system.

CHORE-BOY Complete, One-Man, Milk Producing Plant

These buildings are manufactured in sections at the Chore-Boy factory and erected on the job. They are well insulated, have Thermopane windows, electrical ventilation and vacuum door controls. They are warmer, drier, and more economical than many locally constructed parlors.

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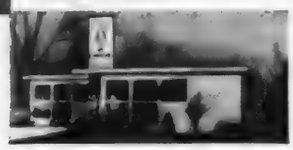
Chore-Boy dealers and their service men are given thorough training in the installation of Chore-Boy products. This is part of our program to insure users the best type of service.



Choice dealerships available — We provide sales and service training

CHORE-BOY LOW-VACUUM MILKING SYSTEMS

See Your Dealer or Write Dept. 13

FARMER FEEDER CO., Inc., Cambridge City, Indiana

HARVEST EARLIER . . .
REMOVE THE WEATHER RISK!

CROPGARD
FARM DRYER

By harvesting earlier you reduce field losses, increase yields, secure better market prices, get fall plowing done . . . and remove the constant weather risk. You can accomplish all this *if you have a Cropgard Dryer.*

TAKE THIS DRYER *to the crop!*

This is the only *completely portable* farm dryer that can be moved when loaded. P.T.O. powered. Operate it in the field to save time, money and extra handling . . . for shelled corn, soybeans, milo and small grain.

BIG DRYING CAPACITY

More drying capacity per dollar invested than any other dryer—*guaranteed!*

LOWEST SELLING PRICE

With all its exclusive, patented features, Cropgard sells for about half the price of other big capacity dryers. It can be A.S.C. financed, too!

Write for free illustrated bulletin and name of your nearest dealer.

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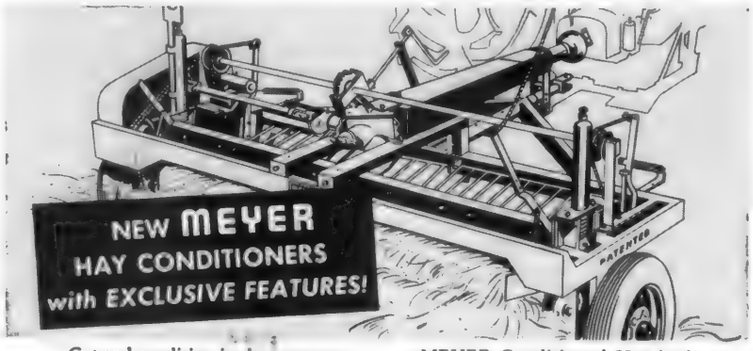

Cut and condition in the *same* operation, an exclusive MEYER patented feature. Stems are cracked entire length—aren't broken in spots as with crimper, allowing them to dry fast as leaves. Protein-packed leaves are not stripped—remain on stems. Hay is mow-ready 50% faster. Exclusive RETRACTABLE MULTI-FINGER PICK-UP and SEMI-SLOTTED LOWER ROLL.

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Send Self-Propelled facts, and complete Gehl Chop-All information ☐
I'd like to see the new Gehl color movie on "Modern Forage Handling" ☐
Check here, if this is for school use ☐
Name_____ Acres Farmed_____
Address_____ State_____

GEHL Chop-All
PRONOUNCE IT GAIL

You can't beat Gehl's lower price

caught in the same giddy game and take undue risks.

Though prices do not move with anything like the regularity that shows up in cattle numbers, you can tell what they are most likely to do by the current phase of the numbers cycle.

Looking back, the record shows in 1951, when our friend Urban Plunger was ready to pay $300 per cow, total cattle numbers climbed from 82,083,000 to 88,072,000—more than six million head in a year. Everyone was holding she-stuff as well as steer calves and yearlings. Slaughter of cattle and calves totaled only about 26 million head for the year—three million less than 1950.

By 1954, cattle numbers were high, 95,679,000, and the Southwest was suffering from one of the worst drouths in history, a drouth which spread even into the southern Corn Belt. Cattlemen were forced to sell, because of lack of feed and stock water. Total slaughter for the year was over 39 million head. No wonder the U.S. average price received for beef cattle dropped from $30.30 per hundred pounds in April, 1951, to $15.10 by November, 1954—cut in half!

The peak in cattle numbers, despite the break in price, was reached on January 1, 1956, when the total inventory stood at 96.9 million. During 1956, another severe drouth year, numbers were cut by 2.3 million head. Slaughter reached an all-time high of 40.6 million head of cattle and calves for this year.

U.S. consumption of beef, which had been 56.1 pounds in 1951, now reached a record of 85.4 pounds per person. On the other hand, 1956 was the low-water mark for beef cattle prices in this cycle—an average of $14.90 per hundred was received by farmers.

1957 was the year of the big change in the current cattle cycle. The year started out with prices low, producers discouraged, and breeding stock being liquidated.

Then the rains came. It just didn't seem possible so much rain could fall in the parched plains from Dakota to Old Mexico. Grass grew higher and higher in the grazing country west of the 100th meridian.

With the return of grass and stock-water came interest in restocking. But there were practically no cattle to be found in the Southwest. The price on 300-500 pound stocker steer calves at Kansas City shot up from $20 in mid-February, 1957, to $25.25 by mid-September.

A huge feed crop was produced in 1957, adding to the demand for feeding cattle, to use the corn and the fabulous output of grain sorghum. By October, 1957, it became apparent that much of the Midwest corn crop would be too wet to store safely.

Then the lid blew off the feeder market. Price of the Kansas City calves was up to $27 by December, spurred on even more by abundant wheat pasture from Kansas on into the Southwest. Hay, silage and grain were cheap and plentiful. Fat cattle prices were soaring. These factors pushed prices of feeder cattle up. The Kansas City calves went still higher, reaching $29.50 by March of this year—a rise of $9.50 per hundred pounds, nearly 50 per cent in one year.

The time was ripe for some improvement in

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20¼" wide

100 BU. PER MIN.

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17 FT. $138*
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cattle prices, according to the typical cycle. The ending of the drouth and the buying surge, sped up this expected price jump. This series of events all happened to fall in the same 12 months, shooting cattle prices up faster than almost any cattleman could hope for. It gave those with cattle to sell a chance to turn a good profit and wipe out some past losses. The cruel part of it was that many ranchers in the former drouth areas had been forced to sell out on the lowest market, and then had to bid against each other on this rapidly rising market to get cattle for restocking.

Total cattle numbers in the U.S. dropped a half million head in 1957, but the drop was mainly in cattle for milk. Men in the beef business probably feel dairy stock is not important, but it makes up almost one-third of the total cattle inventory. In 1956, slaughter of cattle grading Standard and below made up 42 per cent of the total. A great amount of this was dairy stock, so it is obvious they exert an important influence on the total picture.

Looking closer at the increased beef cattle inventory, it can be seen that 400,000 more steers account for most of the buildup. The major share of them will be killed this year. Beef cows were down one per cent, beef heifers up one per cent, and calves showed no variation. The total 1958 calf crop, including both beef and dairy, will again be down almost two per

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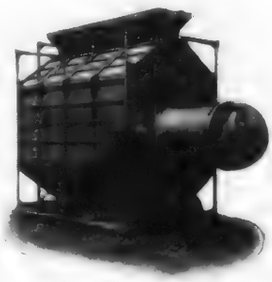

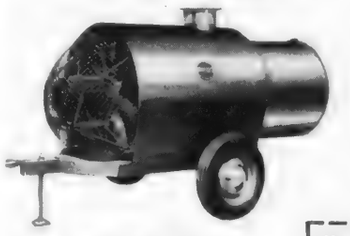

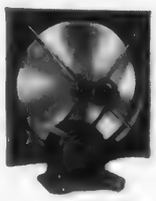

Hay, shelled or ear corn, small grain, peanuts, soy beans, tobacco . . . it makes no difference what crop you want to dry, Hartzell has the right equipment for the job.

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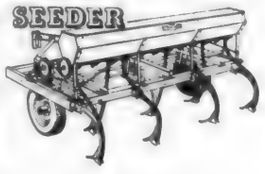
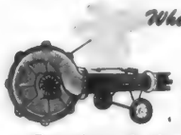


Plant as you perform last tillage to save moisture and get better stands . . . higher yields. Big capacity seed box; accurately metered seeding. Models to fit most chisel plows and tool bars.



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cent, the beef calf crop off hardly one per cent.

Here at Doane Agricultural Service, we analyzed the present cattle situation in the light of the recent past and from an historical point of view. Even though there is a terrific demand for cattle, we expect total numbers will again drop in 1958. The main reason for this prediction is the heavy slaughter of breeding stock in 1956 and the early months of 1957. Even with the heavy rains and plentiful feed in 1957, there was a drop in beef and a bigger drop in dairy cows. Hence the total 1958 calf crop will be about two per cent less than 1957.

Looking at the heifer inventory, we find beef heifers on January 1, 1958, were up 77,000 head from a year earlier. These can be dropping calves in 1959. However, the number of dairy heifers was down 45,000 head in 1957—cutting deeply into the beef increase. We must consider both types of cattle, since a big share of beef comes from dairy stock.

Analyzing these facts, we feel total cattle numbers will show a very slight decrease in 1959, with the low point in the numbers cycle coming in that year. The low point may be 92 million head, compared to 93.9 million last January.

This will mean a "down" phase in the cycle that will last about four years. The last two cattle cycles have had numbers go down four years. A glance at the graph on long-time cattle numbers shows the trend since 1930 has been up rather sharply. Each "low" was higher than the one before. Part of this was due to the use by cattle of millions of acres of pasture and crop land formerly required for horses and mules used in farming.

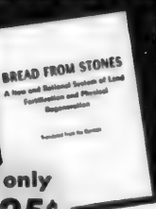
Pasture and range improvement, more irrigated pastures, use of better grass and legume mixtures and other technical advances have made it possible for this country to increase continually its carrying capacity for cattle. Consumer preference for beef has been strong enough over a period of time to encourage an increasing output to meet our growing needs.

After the cattle inventory hits bottom, we expect another explosion which will blast numbers right up through the 100 million head barrier, and then past the 110 million mark. We expect a total of about 112 million cattle by 1965 or 1966.

The big upsurge in cattle prices during the past year or so will give terrific impetus to the cattle business. We have already pointed out what happened to the feeder market. In the year from March, 1957, to March, 1958, Choice steers (900-1100 lbs.) at the Chicago went from $21.20 per hundred to $29.85—a rise of $8.65. Prime steers bumped $38 at Chicago; a reminder of the fantastic markets of 1951 when Prime steers averaged over $40 for a few weeks.

At this position in the cycle, cattle prices could normally be expected to trend steadily upward for several years. How-

"BREAD FROM STONES"



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THIS MACHINE CHOPS AND LOADS! Chops green feed, silage, dry hay, and stalks for bedding. The new 60-G handles the heaviest or the lightest crop . . . with less power!

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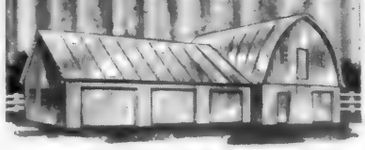

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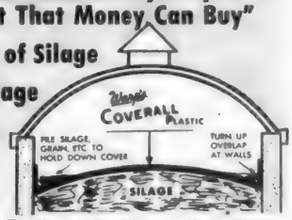

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For 12 Ft. Silo—$5.90 | For 16 Ft. Silo—$8.50
For 14 Ft. Silo—$7.10 | For 18 Ft. Silo—$9.85
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8 Gauge Black Recommended

Warp's COVERALL is available in bulk rolls in widths up to 40 ft., and in 3 thicknesses. Regular Weight 1¢ per sq. ft., Heavy Weight 2¢ per sq. ft. and Extra Heavy at 3¢ per sq. ft. Has dozens of other farm uses . . . baled hay covers, fertilizer and seed covers, machinery covers, etc.

Take this ad to your Hdwre., Lmbr., or Farm Supply Dealer to be sure you get genuine COVERALL in the Right Size at the Right Price. The name is branded along the edge for your protection.

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ever, they have risen so fast they may have to level off for a year or so before the last big upward burst.

After that breather in the market, we believe the general level of the cattle prices will go up more in the 1959-1961 period. This is when the greatest holding back of cattle is likely to take place and slaughter will be the lightest. There will be a mad scramble for breeding stock.

1962 would be our guess as to the year when prices would be apt to break, give or take a year. At least after 1961, we will be in a vulnerable position, like we were in 1951. A business slump, a dry year, consumer resistance to higher prices, or a number of other factors could set off the chain reaction that would start prices on their downward skid. Before that happens, we may well see Prime cattle hit $50 at times. Fancy feeder calves will probably match that figure.

What Should You Do About It?

The movement of this cattle cycle and the price reactions which accompany the movement of cattle numbers, have real meaning for both the cattle producer and for the feeder. There are certain actions profitable at some stages of the cycle, but almost disastrous at other times. As farm managers of many different types of enterprises, we have to interpret and draw conclusions from the facts and translate our findings into practical farm plans. Here is what we advise:

For the Producer: From now until about 1961 is the period to make money before the "seven lean years" come around. Pay off debts, make needed improvements on buildings and fences, and buy any necessary equipment.

Operate at top capacity during this time. While breeding stock has almost doubled in price from the low point, this coming fall will still be a fairly good time to buy young cows and heifers to build up your breeding herd. You can be selling calves from them in the peak price years.

After about 1960 move to the selling end, so far as breeding stock is concerned. Cull out old cows or poor breeders while prices are high. Have a young high-quality herd when the next price tailspin begins.

Expect that in the fall of 1958 steer calves will sell in the 25 to 30 cent range, depending upon size and quality. Price in 1959 may not be much higher. Then there should be further market strength in the early 1960's. Two-year-old feeders will become a thing of the past as demand is shifting toward light, grain-fed slaughter cattle, finished out at a young age.

For Purebred Breeders: Demand has begun to pick up, but the strongest surge of this cattle cycle is yet to come. At the famous Red Bluff, California, bull sale this spring, 294 Shorthorn, Angus, Horned and Polled Hereford bulls sold for an average of $737 per head. It was the highest average price since 1953 for the Herefords.

However, purebreds have not seen quite the rise that commercial cattle have had;

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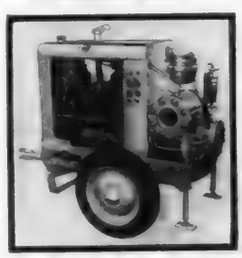

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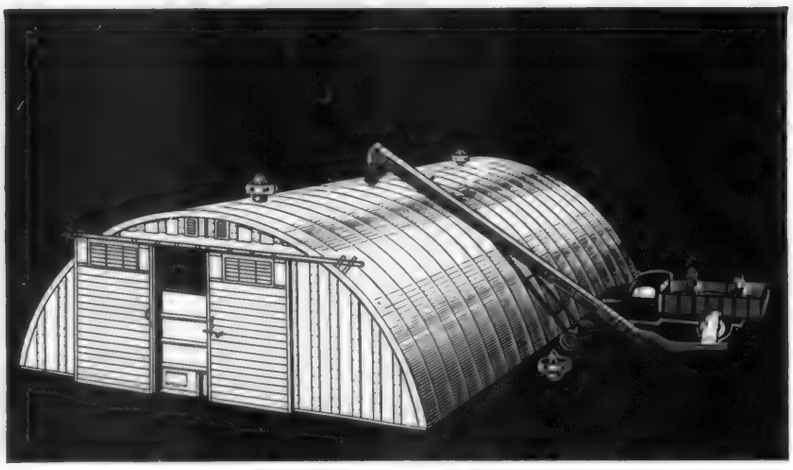

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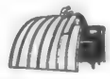

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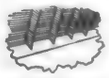
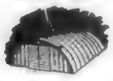


No interior liners to catch grain



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LR-16

this seems especially true in the Southeast. Such a lag is not unusual. The real demand has been for any kind of a critter to stock newly greened pastures and ranges after the abundant rains last year.

Your best prices will come during the early 1960's, although they certainly will not be bad in 1959. If you act now, you still have time to buy a high quality bull and have some of his offspring for sale on the good market. Of course, the same is true of buying cows from top blood lines. Investing heavily after 1960 will be a high risk venture.

Be sure to bring all registration papers up to date if you have been letting them go. An Illinois farmer with a herd of about 80 Angus cows has been negligent about this. Many of his animals could be registered, but he has been feeding out the steers, saving back a few of the heifers and not making any attempt to sell breeding stock. "Why keep up the registration?" he asks. In this situation, he may wake up and find he is missing some fancy prices for bulls with papers.

For Cattle Feeders: This business is on more of a year-to-year basis than the producer, with each season's operation standing or falling on its own. Feeder cattle will become increasingly scarce as the years go by. This already has shown up. Costs of replacements are likely to be somewhat higher each year, may be not much more in 1959.

However, we have analyzed several feeding programs in recent years and the best profits were generally made in the years 1949 to 1951, when feeder cattle were expensive. Of course, you can expect to be caught some year with a feed lot full when the bottom drops out of the cattle market. But for the next few years, expect a fairly dependable cattle market. A rising market gives the advantage of adding value to animals while you own them.

The best bet is to build up the volume of a feeding operation to justify mechanical feed handling equipment and well-designed, labor-saving building and lot arrangements. Find a feeding program that works well and stick with it year-in and year-out. Build up a little backlog, so you can stand a bad year when it comes. Remember the non-swimmer who tried to wade across a river that only averaged two feet deep. Trouble was there was a 10-foot hole. On the average he was all right, but he had no water-wings for the deep spot.

Fortunately, there is one sign to warn farmers of an impending drop. When the Main Streeters begin to pay fancy prices for cows or even buy shares in a single cow to make a fast buck, beware. The farmer should be in a position to sell Urban Plunger his cow, but should resist the fever that strikes at the peak of the cattle cycle.

THE AUTHOR: Forest L. Goetsch was born and raised on an Iowa farm where he learned the practical side of cattle raising. After a stretch in the Air Force during World War II, he studied agricultural economics at Iowa State College to fill in the theoretical side of his training. After graduation he went with Doane Agricultural Service, Inc., in St. Louis. He is editor of Doane Agricultural Digest.

WHEAT BITES FLY

(*Continued from page* 69)

and gave large yields. The 1957 test crop gave an equivalent of 11 tons of green crop per acre 8 weeks after sowing. Brown reported control of soil organisms by the insecticides was a factor—few soil insects were found in the soil the following June.

By 1956 a number of other scientists began to experiment. Professors Gordon E. Guyer of Michigan State; J. H. Bigger at Urbana, Illinois; C. R. Weaver of Ohio State, and M. Curtis Wilson of Purdue tested chemicals. The newcomers tried seed treatments, and granules applied through the fertilizer distributor of the wheat drill —without fertilizer in some cases.

With the new methods came snags. Where Thimet came in close contact with the seed—as in seed treatments—there was an effect on germination. This was especially true under poor conditions, where germination was already bad. But Guyer found this effect was greatly diminished where an organic fungicide was used. Perhaps Thimet made the wheat susceptible to fungus or the fungicide acted as a buffer, preventing Thimet from doing chemical harm to the wheat.

But as granule, seed treatment or mixed with the fertilizer, the thio-phosphates killed the Hessian fly larvae. There was no doubt of it. There were 90 per cent kills with less than a pound of actual chemical per acre.

William Van Scoik, agriculturalist for American Cyanamid at Fort Wayne, Indiana, said, "From preliminary data, it appears ¾ lb. insecticide per 100 lbs. wheat would give effective control of the pest."

And the cost? The price of Thimet to the dealer varies with the quantity bought. There would be a charge for the treatment of the seed, tricky in many ways, but a satisfactory seed-treating machine is made by the O. W. Kromer Company, Minneapolis, Minnesota. The price should still be moderate, perhaps $2 per acre.

When Can We Use It

The availability of Thimet and Di-syston depends upon the granting of a label under the Miller Act governing poisonous chemicals. This gives the Food and Drug Administration authority to govern the use of poisons and to determine the controls that must be followed. The companies must prove the chemical can be used safely, and show the wheat produced is not affected. Registration would permit the use of these chemicals, with restrictions prohibiting grazing or cutting the crop for feed within a certain period—probably 60 days.

Both Van Scoik and L. P. Quattrochi, field agents for American Cyanamid and Chemagro Corporation respectively, agree there is only a possibility of registration for the fall of 1958, but believe a label is almost certain for the year after. Undoubtedly the necessary petition to Washington would cover three uses—seed treatment, mixture with fertilizer, and use as granules.

The advantage of the granule is the security from germination worries and the farmer's independence from either seed treatment or fertilizer. However, the storage life of the granules is short. They now have good stability for six months, said Van Scoik, and American Cyanamid hopes to improve storage life before the product reaches the market.

For seed treatment of wheat, the effect on germination is a major problem. Wilson at Purdue is trying various stickers in combination with different fungicides to reduce the effect of thio-phosphates on the seed and still kill the flies.

But whatever the complications of the other methods, Brown's fertilizer treatment works. It has killed and is killing the Hessian fly larvae.

In recent years there have been few

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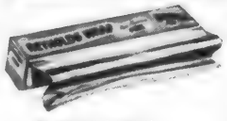

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serious infestations. But the Hessian fly is a sporadic pest. As his population falls, his natural enemies die off. Then as the fly population soars again, the wheat suffers. The fly likes wet seasons. The worst damage has always occurred when precipitation was high. Much of the drop in the fly population in Kansas and other Midwest states has come since 1950—during the seven dry years. The fly is biding his time. The female can lay 500 eggs in her short life. In two generations a massive infestation of the fly can build up, if the conditions are favorable.

But now the farmer will have another protection from the fly.

Professor Brown found this weapon, and he said, "There are a lot of production questions not yet answered, but as to the insecticide—we've got it."

The Life of the Fly

In the years before systemics were discovered, science had not ignored the fly, but the insect had withstood the attacks. In 1898, Herbert Osborn, professor of entomology at Ames, Iowa, reported, "Lime, soot, salt, etc., have been tried. None of these methods seem to have sufficient merit to deserve extended notice. There is little reason to believe they will accomplish as much as the more simple methods of farm practice." Osborn continues, "The same may be said with still greater emphasis concerning all suggestions as to the treatment of the seed wheat, since there is no possible connection between the seed wheat and the infestation of the field." Osborn's statement, with which most scientists of his time agreed, shows what a complete breakthrough systemics have been.

If the fly is not the pest he was, culture has hindered him, not chemistry. His population was not a trouble the farmer could spray away. He is a hardy beast, this fly, and thrives on other plants than wheat. He infests grasses of hedgerow and pasture; fields of barley and of rye; and, of course, the wheat of neighbors' fields. There were only two controls available—the fly-free date and the resistant variety.

That is, until systemics.

The fly is a world traveler. His origin is unknown, but when he arrived in New York State during the Revolutionary War, he was already well acquainted with Europe. In March, 1888, he was reported in New Zealand, and he almost certainly came by straw. Russia and South Africa, Portugal or Australia—name the place and he was there. Without favorable wind his flight is limited to field-widths but he is an inveterate hitch-hiker. On hoof and back, in bale and sheaf, the maggot of the fly travels with its enveloping wheat. And he can survive climates from central Oklahoma to North Dakota.

The fly usually has two generations a year. The Russians were first to claim three for their fly, and later the French achieved an experimental eight. But the fly prefers the double cycle, with fall and spring emergence of the adult which lays the eggs.

An adult lays her eggs in the long creases on the upper surfaces of the young wheat leaves. Pale red, with dark red spots, the eggs are hair thin and just visible to the naked eye in bright sunlight. A reddish, legless maggot appears in about four days, according to the weather, and makes his way down the leaf alongside the wheat stem. Where leaf meets stalk, near ground level, the larva sucks plant juices from the stem and leaf sheath. For several weeks he grows until he is pencil-point size. There he stays, his skin hardening, drying and browning, becoming a puparium. Because of the appearance, this is called the "flaxseed" stage. This flaxseed of the autumn generation is dormant until the spring, when the second generation adult fly emerges and again lays eggs on the now older wheat. The maggots eat again, and the flaxseed snuggles in the wheat and wheat stubble until the fall. The new short-lived adult then searches for early planted winter wheat on which to lay the eggs and the cycle repeats. In favorable weather, more than two generations a year can form.

Only the maggot eats. He eats nowhere but inside the leaf sheath, causing a slight gall, deforming the wheat and stunting it. He lives in a protective capsule of breakfast, lunch and supper. His eating can kill young wheat, severely deform larger spring plants. Enough larvae devastate a crop. Many maggots may infest

one plant, killing it completely. But the maggots in the middle of the stem are safe from sprays and foes. The only weak point in his growth was those few days when, as an egg, he lay open on the leaf. While eating he was safe.

Before systemics.

The pest has a past of depredations. A heavy infestation in the fall can wipe out a planting; in the spring it can severely cut the grain yield. And the marginal loss is ever present. Last year, this year, the Hessian fly will take the edge from production in many areas. A yield will be pulled down from excellent to very good, possible wheat grazing will be missed, certain wheat varieties will be avoided.

Natural Control

Natural enemies of the fly abound. Small insects with no other names than *Merisus destructor* or *Callitula bicolor* lay their eggs in the larva of the Hessian fly. Minute, wasp-like parasites carve their livelihood out of the maggots living in the wheat stem. Some nematodes, worms and thrips are Hessian fly parasites. But they are not enough.

A host of cultural practices have besieged the Hessian fly. Most of them destroy him as he lies unconcerned in the center of the wheat. Burning or plowing stubble, grazing wheat with sheep—only close grazers reach the maggot—rolling and harrowing, all have been tried. Rotations, too. No wheat after wheat, or decoy strips which attract the fly and then are plowed under. But only the fly-free date and the resistant variety have been effective.

The fly-free date varies across the country. This is the date of the end of the fall emergence of the fly. Wheat is sown to appear when the flush of flies has died, their eggs laid elsewhere. This date is late—missing the best fall growing weather. While the Hessian fly-free date is an effective cultural control, it leaves much to be desired in the agronomics of wheat.

The resistant variety repels the fly. Some botanical feature makes the leaf less attractive for egg laying or prevents the maggot from feeding on the wheat plant. There are several resistant varieties, some of them excellent wheats. Some have been known for years. A Mediterranean wheat was found to be resistant in 1819. But the yield was poor. Better resistant varieties have been developed. Pawnee and Ponca, Dual and Todd are but a few.

Resistant varieties are the best bet this year. It may be because of the economics and the hazard of the new chemicals, they will remain the best bet in the future. The problems of applying the chemicals safely are great. But science has solved tougher teasers than this.

Although resistant varieties rarely suffer from the fly they run greater risk of infestation when planted early to offer fall grazing. And in some areas the value of the grazing approaches the value of the grain crop. Kansas research has shown wheat can produce lush fall grazing and still give top grain yields. In some cases the yield is improved by grazing. Last fall and this spring cattlemen from the Panhandle of Texas to the north of Kansas—the winter wheat belt—had some of the best wheat grazing for years. If this wheat goes on to a maximum grain yield, the grazing was a by-product at no cost.

There are farmers who prefer a local wheat—for yield or for

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forage merit. If it is not resistant to Hessian fly, there is only one safe choice—delay of planting until the fly-free date. Much of the best growing period of the autumn will be missed. Late planting may lead to heaving or poor ground cover. The roots might not become firmly anchored or reach the water level before the first frost slows growth. All this, and it was a lucky man who could graze such late-sown wheat.

But next year, perhaps, he can use a systemic, and let the wheat bite back.

"I BUY TOP HOGS"

(*Continued from page* 65)

the truck the better the condition in which he will arrive and the better he will dress out. That is why we put that time limit on our truckers. Every time the truck stops, the hogs get up and squeal and lose weight.

Federal law requires that every livestock shipment stop at least every 36 hours for feed, rest and water. Our feed station is at Salt Lake City. Here the hogs are unloaded for four hours. And we have introduced a little stunt here which has improved our yields one to one and a half per cent. Sometime ago we heard that feeding brown sugar to hogs in transit helps to reduce the shrink. It seems that the dextrose in the sugar is retained in the body tissue and keeps the tissue from shrinking. So, when our hogs come off the truck they find the troughs full of water to which 20 to 25 pounds of brown sugar has been added. After the double-deck of hogs drinks this dose the troughs are refilled and they can have as much as they want and eat their fill. They won't touch that sugar water, though, unless they are real thirsty.

We stay there the full four hours, not only to meet the legal requirements, but because it takes a hog that long to drink all he wants. A hog will drink awhile, then go eat or lie down; then in a little while he will come back and drink some more, then go away again, and keep this up for several hours. A hog is just about made of water and we want him to fill up.

We have another idea we are working on, too. We are going to have our feed pelleted, using a corn base, brown sugar and various other ingredients and we may get to the West Coast without a shrink.

After a farmer has gone to all the trouble of breeding and feeding out a bunch of top hogs and we have battled with the competition to do a good job of buying them, we want to do everything we can to deliver them in first-class condition.

This is the hog business seen from a buyer's shanty. To put it in a nutshell, good, lean, meat-type hogs can find a buyer at a decent price any time. To produce that kind calls for careful breeding plus a feeding program which will consistently put hogs on the market which will dress out well and yield a high percentage of primal cuts.

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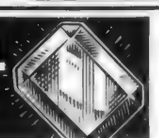

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GRASSHOPPERS WALKING

(*Continued from page* 51)

could not shake the crawling sound out of her ears nor brush it off her skin.

The fourth day came and the grasshoppers went on walking. The sun shone hotter than ever, with a terribly bright light.

It was nearly noon when Pa came from the stable shouting: "Caroline! Caroline! Look! The grasshoppers are flying!"

Laura and Mary ran to the door. Everywhere grasshoppers were spreading their wings and rising from the ground. More and more of them filled the air, flying higher and higher, till the sunshine dimmed and darkened and went out as it had done when the grasshoppers came.

Laura ran outdoors. She looked straight up at the sun through a cloud that seemed almost like snowflakes. It was a dark cloud, gleaming, glittering, shimmering brighter and whiter as she looker farther into it. And it was rising instead of falling.

The cloud passed over the sun and went on far to the west until it could be seen no longer.

There was not a grasshopper left in the air or on the ground, except here and there a crippled one that could not fly but still hobbled westward.

Pa leaned in the doorway and said, earnestly, "I would like someone to tell me how they all knew at once that it was time to go, and how they knew which way was west and their ancestral home."

But no one could tell him.

EDITOR'S NOTE: Laura Ingalls Wilder, in her charming book, "On the Banks of Plum Creek" (copyright 1937, Harper & Brothers), tells of a grasshopper invasion when she was a young girl on a Prairie farm. Grasshoppers Walking was part of one chapter.

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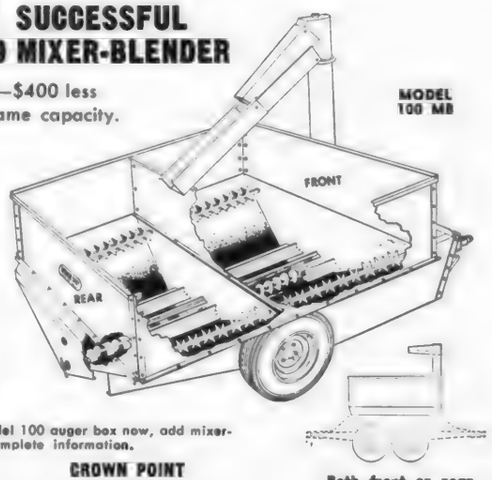

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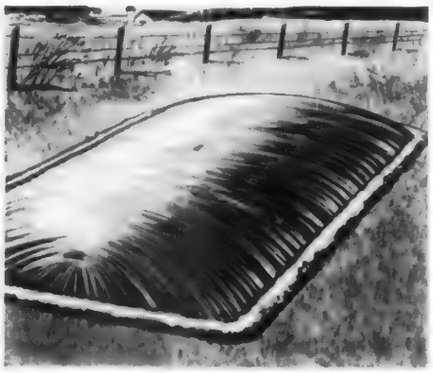

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GRASSHOPPERS

(*Continued from page* 50)

most of the world. They are not to be confused with cicadas.

"All grasshoppers with well-developed wings do some sporadic flying," Dr. Parker said. "Short flights are made in search of mates, food or a more comfortable situation. Mass flights take place when their numbers are abundant, but why, nobody knows. It may be to obtain food, when mass flights will take a swarm from an eaten-over field toward a field of green corn a short distance away. But this does not explain their high, long-distance flights which may take them from a region of plenty to one of scarcity. These high, long flights may be to escape heat. A hopper likes temperatures up to 110 degrees, but higher than that he doesn't like. Fifteen minutes of 135 degrees will kill him. By taking to flight he reaches a cooler altitude.

"The first flying of the season," Dr. Parker continued, "is done by a few individuals that mill about during the hottest part of the day and then settle down close to where they took off. These flights excite others and within a few days the whole area is excited. Then comes a day when, for no obvious reason, the individuals become a swarm that flies in formation as a unit, with leaders, which takes off for parts unknown."

Swarms plummet to earth when clouds darken the sun or the temperature drops. In any case, the swarm usually settles in late afternoon to feed. After several flights food becomes a secondary matter, and headlong flight continues. As the females become heavy with eggs they drop out. When all are ready for egg laying, the flight ends.

Pilots have reported swarms several thousand feet above the ground. On a calm day they can make 10 miles an hour —with a tail wind, 10 miles an hour plus the speed of the tail wind. A swarm will travel 25 to 50 miles a day. In 1938 a swarm flew across South Dakota and into Montana, a distance of 500 miles, in three weeks. Between 1874 and 1877, swarms flew from Montana to Texas and eastward to the Mississippi Valley. One observer said that one such swarm averaged a half mile in height and was 100 miles wide and 300 miles long. He estimated that there were 27 hoppers per square yard, nearly 28,000,000 per square mile. In 1945 a swarm in Kenya, Africa, was weighed photographically and estimated at a ton per acre. Locust-eating natives of a Tunisian village in 1956 sacked and dried 3,000 tons (740,000,000 insects) during a relatively short passage of a migratory swarm.

The hopper's skeleton is on the outside, giving him a coat of armor against enemies. This armor prevents moisture loss and also affords a convenient attachment for his very efficient muscles. He has two large compound eyes used for seeing and three small single eyes which, according to

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some scientists, serve as thermostats rather than as eyes. On his head are two antennae used for examining his food, and a mouth with strong jaws and rugged teeth. He has two pairs of wings, the larger pair used for protection of the smaller pair and for gliding. The front legs are used for walking and for manipulating food. The second pair, similar to the first, are used for walking; the third pair, and what a pair they are, are used for both walking and jumping.

The jump of the grasshopper is one of the wonders of nature. If man's muscles were as quick and strong as a grasshopper's he could leap over a 70-foot silo, jump 100 feet horizontally from a flat-footed start. The muscles of a man may develop 200 grams of power per gram of weight; those of a hopper develop 20,000 grams of power per gram of weight. A hopper is a prodigious jumper, but once in the air he has no control over his flight. He often turns over and over in the air, landing on his back. Unfortunately, this does him no damage.

There are more than 200 varieties of hoppers, but only a half dozen do 90 per cent of the damage. They are: (1) The Migratory Grasshopper, (2) The Differential Grasshopper, (3) The Two-striped Grasshopper, (4) The Red-legged Grasshopper, (5) The Clear-winged Grasshopper and (6) The American Grasshopper. The latter, 2½ inches long, is one of our largest here in the USA. In the tropics there are hoppers large enough to attack and kill birds and small animals.

For more than half a century, the old standby poison for grasshoppers has been arsenic or sodium fluosilicate mixed with bran trickled around a field or scattered over highly populated areas. These old poison baits have now been replaced almost entirely by modern insecticides. Some of these new insecticides are so potent that as little as 2 ounces spread evenly over an acre will kill all the hoppers. They kill in two ways, by contact and through the stomach. If a hopper is not hit directly, he dies from his first bite of food.

The new insecticides are applied either as dust or sprays. Aldrin, chlordane, heptachlor and toxaphene are currently recommended.

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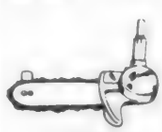

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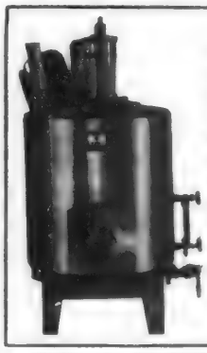

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In addition, methoxychlor is recommended on fruits and malathion, a less toxic insecticide, on vegetables. Sprays give a higher initial kill, they last over a longer period and require less to the acre. The sprays are sold in concentrated form for emulsification with water or dilution with kerosene or fuel oil, or as wettable powders prepared for dilution with water. The amount of dilution is determined by the type of spray or dusting equipment, the capacity, and hence the delivery rate, of the nozzles, and the speed of the application. In spraying, for an acre, use no more than 2 to 4 ounces of aldrin; ½ to 1 pound of chlordane; 2 to 4 ounces of heptachlor; 1 to 1½ pounds of toxaphene. If these materials, except aldrin, are applied as dust, increase the amount by 50 per cent. The lower rates should be used for young hoppers in short, dense vegetation and on open stands of longer growth; the higher dosages when the vegetation is high and dense or when the hoppers are adult.

Because conditions of vegetation, temperature, age, and type of hoppers vary so greatly, the county agent or experiment station entomologist should be consulted. There are various local, regional and national regulations governing the use of insecticides on certain crops, fruits and vegetables. Do not feed forage treated with aldrin, dieldrin or toxaphene to dairy animals or animals being finished for slaughter. Forage treated with 4 ounces of heptachlor per acre may be fed 7 days after treatment. The waiting period with fruit and vegetables varies with the crop. Consult your county agent or experiment station for restrictions on insecticide uses.

Most of the insecticides are poisonous to both man and animals. In concentrated form they may cause acute poisoning if inhaled or swallowed. On those plants grown for seed, such as the legumes, which depend on bees for pollination, insecticides should not be applied when the plants are in bloom. If such a crop is severely attacked by hoppers, use toxaphene when the bees are not in the field.

The effectiveness of grasshopper control almost always depends on how widespread the efforts are. When serious outbreaks occur, they involve all the farms in a wide area—the single effort of one farmer to cleanse his own acres may be temporarily successful, but as soon as his back is turned he has an invasion from across his property line. All must act in unison.

Timing, too, is important. Trained workers are afield, recording egg deposits and populations. These records, coupled with weather probabilities, afford a fairly reliable basis for forecasting the size of outbreaks the following season. Warnings are issued periodically, along with control recommendations. Some species hatch in fence rows, migrating to the fields later. These hatches should be closely controlled. Trained technicians supervise these regional control measures, and are available

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to anyone interested in getting the grasshoppers off his neck.

Federal-State surveys made during the past few months indicate that grasshoppers will be a major pest in 1958 over 18,700,000 acres in 16 states. Over 15 million of these acres are in four states—Texas, Montana, California and Colorado.

Natural Enemies

Grasshoppers have many natural enemies. In ordinary years they are the biggest factor in control, and without them man would certainly be up to his ears in hoppers. Most of them are other insects, some using the hopper as a host for their eggs or larvae, others feeding on them. Among the more destructive of their insect enemies are flesh flies, tangle-veined flies, bee flies, blister beetles, ground beetles and spiders. Rodents eat a great many hoppers and they are a big diet item for all birds, except the strictly vegetarian doves and pigeons. Hoppers are prey to a number of diseases. These diseases are being studied. The hope is that man can start an epidemic among the hoppers—germ warfare with no quarter.

It takes only two survivals from among the hundreds of eggs a female hopper lays to maintain the population; an additional pair of survivals doubles the population. In favorable seasons when three, or four, or more, survive, we have a plague.

A Small Good Word for Hoppers

Very little can be said in the grasshopper's favor, but it ought to be said. He makes good fish bait, next to angle worms perhaps the best. Not only do birds eat him, but he has fattened many a flock of chickens and turkeys in the days when they had free range around the farmhouse.

Hoppers are a staple item of diet among millions of people, not all of them savage. The Philippine government has published a pamphlet describing 33 ways of cooking hoppers. In Mexico they are roasted and sold like popcorn on street corners. In North Africa and the Near East they are very important as a source of protein.

You can buy them at many American delicatessens, roasted or French fried in cans, but they haven't caught on to any extent. Once you have conquered the reluctance to eating an insect, they are delicious, with the delicate flavor of old fish. Time was when man had the same reluctance toward the oyster.

Whether they are eaten, sprayed, dusted, or cussed, grasshoppers will be with us for a long time to come. Predictions are that there will be serious outbreaks in the Plains states this summer and fall, and in North Africa and the Near East drums of chemicals are piling up on the wharves in readiness for the plagues that are sure to come. There are many reasons to believe the hopper is our most destructive natural enemy.

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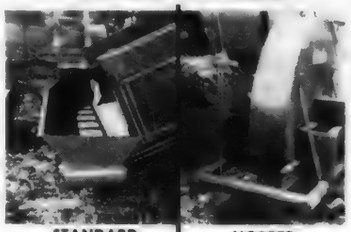

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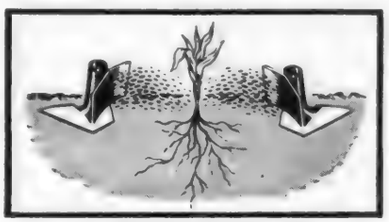

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COUNTRY HOSPITAL

(*Continued from page 73*)

broke and you'll be raising broilers in it within a year."

This was the way the hospital was built, but before a spadeful of earth was turned, Dr. Rossi and a committee settled the possibility of labor trouble. They asked for a meeting with all of the building trades unions in Pekin, the nearest big town. To the business agents of the unions they explained their plan, their hope to use farmer labor on the unskilled jobs and union labor on the skilled jobs.

"You know," one of the committee said, "we found out those guys are human, too. They not only agreed they wouldn't strike or picket our job but two of them, the iron workers and the glaziers, agreed to come over and contribute their labor. We've all felt different about unions since then."

The plans for the hospital were discussed at length with the State Board of Health, and each time a problem arose the Board was asked for advice. At no time was there a tendency to skimp. When Clarence Weihmeir heard they couldn't afford to pipe oxygen into every room, he said, "Pipe it in, I'll pay for it." When they saw they couldn't make it on $75,000, they issued another $30,000 in bonds on a second mortgage. The hospital went ahead.

As the hospital progressed, the questions and doubts were answered. The hospital could not be built on contract for $75,000. This was understood and the farmers of the community pledged themselves and their equipment to do most of the excavation, the mixing and hauling of cement for the floor slab, the laying of bricks, the welding of beams and steel roofing.

Silas Nafziger, a Shorthorn breeder, became the supervisor. "Silas learned to read blueprints and became a building superintendent inside a few days," a friend said. "I don't know how he did it, but he did."

"We worked through the churches," Nafziger said. "Each church appointed one man to recruit labor. When we needed workers we'd just call these men and they'd have as many as we needed on the job. They'd bring their trucks, tractors, bulldozers, or whatever equipment we needed.

"Donated labor laid the floor slab. When welding was needed on the steel panel roof, a half dozen farmers brought in their portable welders and got the job done. Townfolk worked too. Even the Methodist minister, Ronald Winsor, put in more than his share of time hoisting steel for the roof."

Supervising the work was a diplomatic triumph. No man who volunteers his labor and equipment likes to be bossed; but no job is done without direction. The insurance records show that over 125 men contributed thousands of hours of labor at no greater cost to the hospital than the fee to insure them against accident. One of the men who worked on the committee selling bonds and on the building said: "The rea-

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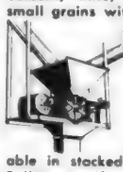

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son for the success, I think, is that I can't remember a single angry word, though we aired our differences of opinion."

One recurring complaint was, "We finance and build the hospital and Rossi will own it." During the early stages, the committee answered this by saying, "That's right—but he ain't going to wrap it up and haul it away. We'll still have a hospital here and that's what we want."

Now, the method of transferring the hospital ownership back to the community is taking shape. A not-for-profit corporation has been formed, made up of local people, for the specific purpose of taking over the hospital. At the present time they are trying to secure a classification from the Bureau of Internal Revenue as a non-profit, tax-free association so that they can receive tax-deductible gifts. When this authorization is received, Dr. Rossi will turn over ownership to the corporation. Some of the bondholders have indicated they would give their bonds to such a corporation—those who cannot afford to do this will be given new bonds to replace those guaranteed by Dr. Rossi.

"The control that individual ownership gave us was helpful in the beginning," Dr. Rossi said. "Now, however, we have fifteen or twenty people in this community who are as well versed in hospital management as any hospital board I have ever heard of."

Now that the hospital has been built and is functioning, some of the questions the nay sayers raised can be answered. To those who wondered how a 20-bed hospital could pay out, the answer is: It can't if it has to hire an administrator. Dr. Rossi, who was an officer in the Medical Administrative Corps during the war, serves in this capacity free of charge. He takes nothing from the hospital personally; he lives from the fees he gets from his patients. "The hospital lets me have office space free," he said. "My house calls have been cut sixty-five per cent. Though I spend a lot of time on hospital business, I must admit that this is a doctor's dream. Here I can really serve my patients. If my patients need drugs, they can get them from the hospital pharmacy—where John Giles, the only registered pharmacist in town, works. If they need laboratory tests, George Margonis, the hospital bacteriologist, will make them. If they need X-rays, a technician is there to take pictures and a radiologist from Peoria serves as a consultant and comes to the hospital regularly to make X-ray studies. A dentist uses our dental clinic once a week. We have major and minor surgery rooms and a delivery room. I may not make much money, but I couldn't ask for a better work place."

For those who worried about the standards of the hospital, the answer is now clear. Though Dr. Rossi technically owns the hospital, he is only one of several voices in policy matters. Even if he should become slipshod about the running of his beloved hospital—a most unlikely event—five of the doctors in neighboring communities

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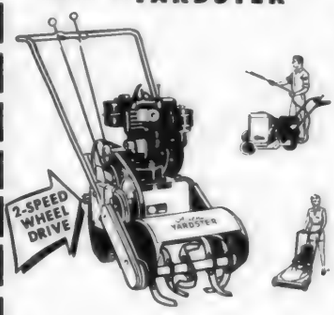

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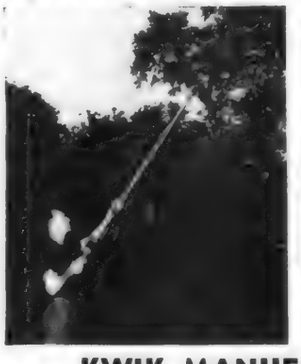

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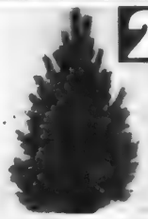

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are on the hospital staff and determine policy. Specialists from Bloomington and Peoria who come in for consultations or to perform surgery would be quick to note and check any lowering of standards.

Those who thought a small town hospital would not be used were mistaken. The morning of the dedication, before the thousands of visitors could line up and go through, the first baby, Jeffry Dale Whitehead, was born. The first girl baby was named Hope.

Since this fast start, occupancy has been high. Five beds are reserved for maternity cases. The other beds—all of which are located in pleasantly decorated two-bed rooms—have been in such demand that the staff dining room was recently taken over and converted into a four-bed room. The staff now eats in part of a storeroom. The unusually low prices charged by the hospital may account for part of this occupancy rate. Hopedale rates run $26 per day as compared with $32 a day as the average for the state.

"We like coming to this hospital," one patient said. "When I was in the Mennonite Hospital over in Bloomington one time, the traffic kept me awake all night long. I was lonely, and none of my folks could take a half day off to dress up, drive over and visit. Here, they stop by on their way to the feed mill or equipment store. They don't stop to dress up; this is home."

The nurses, too, are part of the community. Five of the eight nurses come from farms around the town — daughters of farmers or, like Donna Springer, saw the good life and married a farmer.

The committees of farmers and their wives were given no time to be elated over the success of the hospital. Within a year of the opening they were all busy again, building a nurses' home. This time the financing was simple; Dr. Rossi bor-

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rowed the money, $32,000, outright. Contributed labor and services and furnishings were still of the utmost importance. Mrs. Albert Zehr, head of the women's auxiliary which had fed the workers, bought and sewed the curtains, ran bake sales and ice cream socials for the hospital, threw herself into the new job. "Friends asked me how I could put so much time into the hospital work," Mrs. Zehr said. "I told them it's easy if your husband doesn't mind eating corn flakes for supper."

One night when she was unable to sleep, Mrs. Zehr suddenly thought of her well-to-do friend, Miss Vina Vawter. "I wondered if she might help furnish the nurses' home," she said. "I went to visit her the next day and had to walk up to the door three times before I got the courage to ring the bell. When I asked her she said, 'Would you like the check now, or can I help with the shopping?' " The 80-year-old Miss Vawter went shopping and, though she was appalled at what had happened to prices in 30 years, ended by completely furnishing the home herself—and handsomely. She dedicated the gift—not to herself or her parents—but to the nurses who do so much for humanity.

With the nurses' home completed, plans were laid for a 40-bed convalescent wing to be added to the hospital. There is no opposition nor pessimism about this new project. Though it will run twice what the hospital cost, Hopedale is getting used to miracles.

Earnest Brennemann, who farms some of the blackest, richest soil that was ever reclaimed from a swamp, is chairman of the convalescent home committee. "We are financing this building a little differently," Brennemann said. "We are selling certificates for $750 which can be redeemed in 20 years for $1,000 or used for convalescent home care at any time after the building is completed at the rate of $50 a month. We are also selling four lifetime care guarantees for $15,000 apiece. When you consider we have a pair of twins 93 years old and a farmer 94 years old using the hospital right now, you can see our risk."

When the new wing opens in October of this year no one will be foolish enough to sigh and say, "At last we're through." They know Dr. Rossi too well and are just wondering what is next.

"It's obvious that with the core of the hospital we now have—the operating rooms, clinics, X-ray and delivery rooms, labs and all the rest—we could add another 30 hospital beds at very low cost," one old hand said. Dr. Rossi nodded and said, "Yes, we'll probably want to do that." That is as far as the committee have ever been able to get him to go.

Once in a confiding mood, however, he said to an outsider: "There is one thing that would really complete this unit. We have five and a half acres here and we will soon have facilities for caring for the sick in the hospital and the aged in the convalescent wing. Wouldn't it be wonderful if we could build a row of efficiency apartments along the other side of the property? These could be used by older folks who wanted to stay near the farm and their families, but who are reluctant to be a burden on their children or to live out alone on the farm. Here they could live close to their neighbors. They would be free to come and go as they pleased. We could make the whole inside of our square into a big flower garden so that the back door of each apartment opened onto it. And, they would know they had medical care just a few steps away. I haven't yet dared tell the committee I've even thought of such a thing. And, of course, it is strictly up to them anyway. But wouldn't it be wonderful?"

A member of the committee sums up the feeling of the community when she said: "You don't really know how wonderful having a hospital is until you've lived in a community without a doctor or drug store. Once I stepped on a nail and got a deep, dirty gash in my foot. My husband drove me into town to the garage and the doctor came from Peoria and met us there. Then one of the mechanics drove over to Pekin to get the tetanus shots for me. With this hospital here we know we have contributed to the health of the community. And we know a spiritual satisfaction from having worked together and accomplished a good job."

THE AUTHOR: David E. Lindstrom, professor of rural sociology at the University of Illinois, resigned from the Illinois Public Health Advisory Committee over the question of hospital size. The majority favored a 50-bed minimum. Hopedale is proof of the soundness of Dr. Lindstrom's position. Dr. Lindstrom has taught in Japan at the new International Christian University where, also, he managed the University farm.

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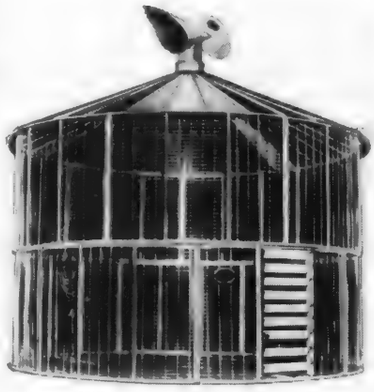

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(*Continued from page* 24)

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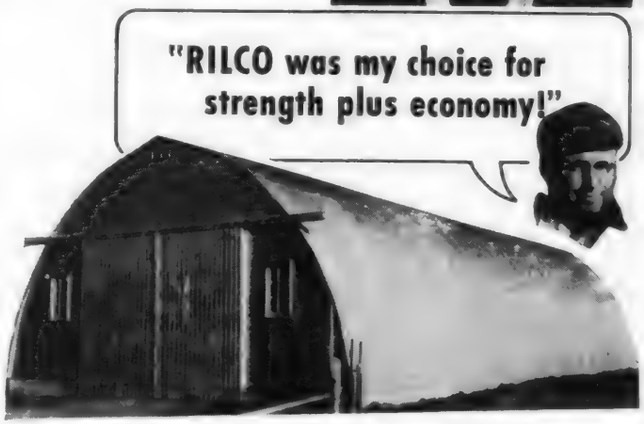
"My boys and I are sold on RILCO"

George P. Roth and sons,
Lawrence *(left)* and Melvin *(right)*

"There's plenty of room in our Rilco machine shed," says George Roth. "We can move machinery around easily with no posts in the way."

The Roths found their 40′ x 64′ Type 50 Rilco utility building economical to put up. Lawrence, Mr. Roth's son, supervised and did most of the work on the building. It took only one-half a day for Mr. Roth, his two sons and two other men to erect the Rilco rafters.

Speedy, easy Rilco erection can save money for you.



Harvey J. Rajdl says, "I selected Rilco rafters because I wanted a building that would hold its shape and appearance as well. I'm satisfied that my new 34′ x 72′ Type 55 Rilco machine shed is as strong a building as we could put up."

Rilco rafters are laminated from selected kiln-dried West Coast Douglas Fir, with strong, waterproof glues; and are shaped, cut to length and drilled at the factory. They are delivered with all connection hardware, ready for quick and easy erection. Mail the coupon for complete information.

RILCO / GLUED LAMINATED RAFTERS

RILCO LAMINATED PRODUCTS, INC.
W-808 First National Bank Building, St. Paul 1, Minnesota

Please send information on the following farm buildings:

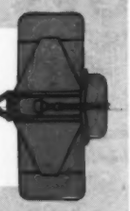
☐ One and Two-Story Barns ☐ Crop Storage ☐ Machine Sheds
☐ Hog and Poultry Houses ☐ If student, check for additional material.

*Name*_____

*Address*_____

*Town*_____ *State*_____

THE ROTO-SPEED ROTARY CUTTER GETS



RESULTS FAST. IT SHREDS STALKS,

MOWS PASTURES, TOPS CROPS, CUTS PRUNINGS,

MULCHES STUBBLE, CLEARS LAND

WORKS ALL OVER YOUR FARM —

ALL YEAR ROUND

There are many Rota-Speed models to choose from. One's just right for your farm. Write us for the full cutting facts.

LILLISTON IMPLEMENT CO.
ALBANY, GEORGIA
Factory Branch: Waco, Texas

LETTERS

(*Continued from page* 14)

tain your reputation for printing only what is right. Mr. Henry Shanks is my neighbour and I wonder if you can imagine his feelings when I showed him your article?

Mrs. A. M. Williams

Pukekura, R.D. 3,
Cambridge, New Zealand

Father Put The Cow Away

Sirs:

Tell Ben Brown to stop moaning the passing of the family cow! She really hasn't passed away, merely been replaced by the family goat, much more practical for today's smaller family. And every bit as demanding as any cow, with her persistent personality.

If he wants to swap cracker barrel stories, I can match any story about cows with scaled down versions involving our French Alpine family. I guarantee he'll be carried back to the days of his nostalgic thoughts when he leans on our fence and calls Pepper over. She'll stand up on the fence, put her nose square against his and bring up her cud with all the aplomb of the ham that she is! And if that doesn't break him up completely, she's liable to lift his hat right off his head and hand it to him!

Mrs. Calvin Briley

Sweet Creek Ranch
Mapleton, Oregon

Has Degree, Will Travel

Sirs:

I suppose it would be too difficult for me to write down my reasons of writing a letter to you in a few but concise sentences.

I am a graduate student of the agricultural college of Istanbul. I am doing my military service in the Turkish army and will finish my service and become a veteran in May, 1958.

I want to work for some time at a place where I can increase my experience and knowledge to be able to apply modern farming methods in my home country.

I will be pleased to have an answer about further information about my plan. I am sure to prove myself if you can give me a chance.

Süleyman Irtem

Küplüce Cal: No. 31
Beyerbeyi, Istanbul, Turkey

THE FARM'S PICTURES

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THE HOME OF TOMORROW

ready for your family—your budget

Folks who saw the Prairie Lady at the Farm Progress Show are already living in their own customized versions. See its 12 farm-tested features in completely furnished model at Walnut, Ill., or near where you live. Fits your budget now—goes up in a hurry.

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Send me FREE Home-Way Pictures and Prices.

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I bought BUCKNER RAINERS because...

I've watched Buckner Rainers in action and know they give long-lasting dependable service. They are designed trouble-free to give years of rugged service under toughest field conditions.

Besides, Buckner's GDG bearing was the original teflon washered bearing. Teflon and rubber washers absorb wear. You get continued even rotation, protection from water borne silt, and extra years of service. Buckner's Rainer is a great sprinkler.

Buckner originated the sealed sprinkler bearing. Buy Buckner Rainers from your sprinkler irrigation system dealer.

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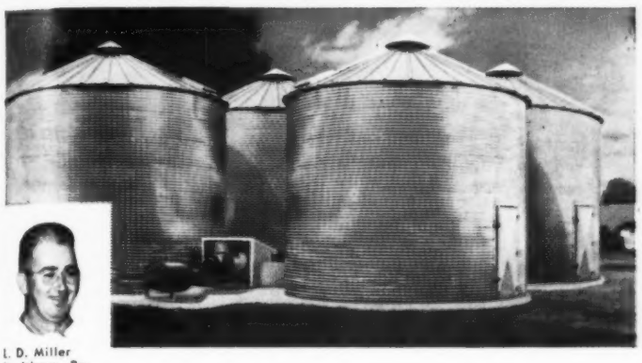
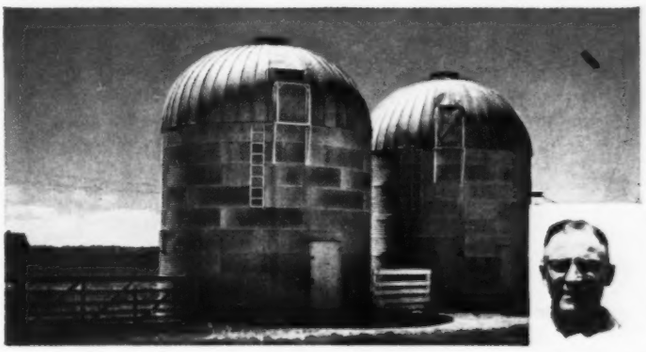


L. D. Miller
Lewisburg, Pa.

Low Cost Drying and Storage

* "The Martin Harvest Hoarder System paid for itself the first year. Now, I'm an independent farmer with either corn or grain."

For less than 3¢ a bushel, Mr. Miller dried his entire wheat crop. Then, he turned off the drying switch and left his wheat stored in the Martin Harvest Hoarder for spring delivery. His income was increased by 58¢ a bushel last year, thanks to his Martin System. Send the handy coupon today, for the "Secret of handling corn or grain."

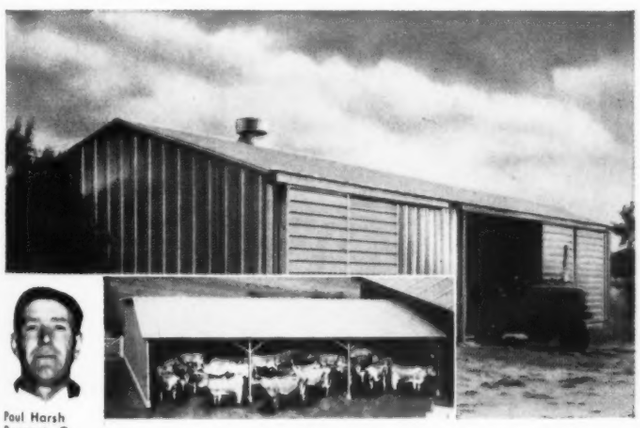


V. Kendle
Ft. Branch, Ind.

Low Cost, Permanent Corn Storage

* "My Martin High Round Crib is permanent, rat-proof, first class storage at a lower cost per bushel than any other crib I've ever used."

You fill and empty the Martin High Round Crib with the same elevator. As one farmer put it, "my hands never touch the crop." The Martin High Round Crib can dry your corn too — for as little as 2¢ a bushel. Why not send for the complete story today?

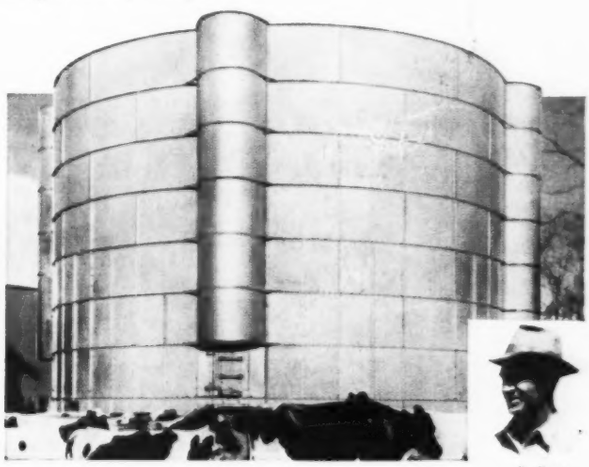


Paul Harsh
Prospect, O.

Cut Farm Maintenance Problems

* "All last winter proved to me that the Martin Loafing Shed is the answer to better winter milk production."

Choose the weather-tight protection of a Martin Steel Rigid Frame Building — to increase winter and summer milk production -or- add two to three years to the life of your implements and tractors. Send the coupon today for the complete brochure of plans. See for yourself that any floor layout is possible — there are no posts or beams.



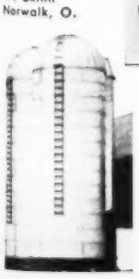
L. Begg
Col. Grove, O.

Low Cost Silage Storage

* "I've used both bunker and trench successfully — but never again. Not when I can feed top grade silage for a storage cost of 70¢ a ton from a Martin Jumbo."

Many modern dairy farmers are finding that there is no better feed than silage. And no cheaper way to handle it than with a Martin Jumbo. Why not check the coupon below and find out how the Martin 500-Ton Jumbo can help you cut feed costs more than you ever thought possible.

W. Skinn
Norwalk, O.



MARTIN

* "I'm using five Martin Silos now. I wish I had more."

Mr. Skinn is typical of Martin Users. He has found that all Martin Buildings are designed to get the most from every acre of land he owns. Send the coupon today for information on the full line of Martin Products. No obligation.

MARTIN STEEL PRODUCTS CORPORATION

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Please send the new booklets I have checked on the following products, with absolutely no obligation.

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( ) High Round Crib
( ) Rigid Frame

Name _____ Student _____

( ) Jumbo Silo
( ) Silo

Address _____ R.RT. _____

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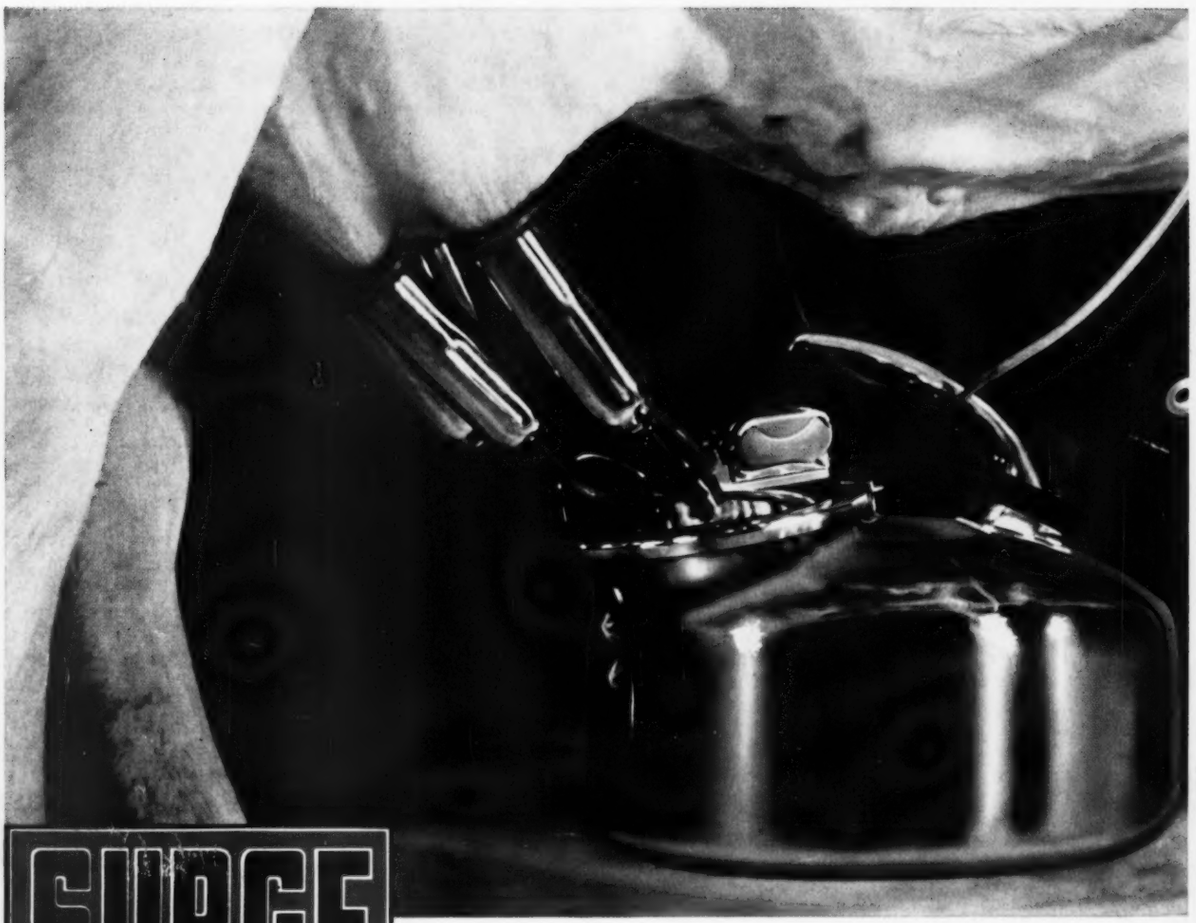

SURGE Built-in TUG & PULL Cow Milking

Every morning you bet every quarter of each one of your good cows plus a good-sized chunk of your milk check that you are using the right milking machine.

A milking machine costs quite a bit of money. When measured against the effect it *can* have and *has* to have on your milk check, it does not cost very much.

The right machine has to pay you back in better milk production—in more time and labor saved—in greater safety for each quarter and it must help and not hinder in the production of the highest grade of milk.

Because so many thousands of Surge users have been so happy with the Surge Built-in TUG & PULL for so many years, thousands of other men, who were using something else, have switched to the Surge. Doing so cost them some money... many of them tell us it earned them much more money!

Parlor, Pipe Line or Bucket . . . 1958 is a good year to switch to Surge.

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